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FERRANTI

S. Africa in talks with ICL

THE South African government is pursuing its plans for local computer manufacture and its talks with ICL (CW, May 31) involve establishing a line for manufacture of medium-large systems. The most likely machine is the new 2960/10, attractive because of its emulation capability, but the 2972 is also a possibility.

According to ICL chairman Tom Hudson, the Republic is frightened of being cut off from computer imports in the event of possible future sanctions; discussions with ICL are continuing.

Tornado contract

EASAMS, the main contractor for avionics for the Tornado multi-role combat aircraft, has been awarded a further contract by Panavia to develop an in-service software facility. To be installed at RAF Cottesmore, it will be used to train service personnel in the maintenance of the operational software.

Techno milestone

AN agreement has been reached between clerical workers and management at NEI Parsons, the engineering group, on the introduction of new technology with no redundancies and redeployment of labour with union consultation. The men's union, the Association of Professional, Executive, Clerical and Computer Staff now says that it will co-operate on the switch to word processing.

Take-over bid

EXXON Enterprises, the oil company's subsidiary that has already entered the office equipment business, is seeking to buy Reliance Electric in order to have a manufacturing and marketing organisation for its new products. It is apparently a microprocessor-driven speed controller for induction motors which, the company claims, saves a great deal of energy.

Univac lends a hand in Manx celebrations

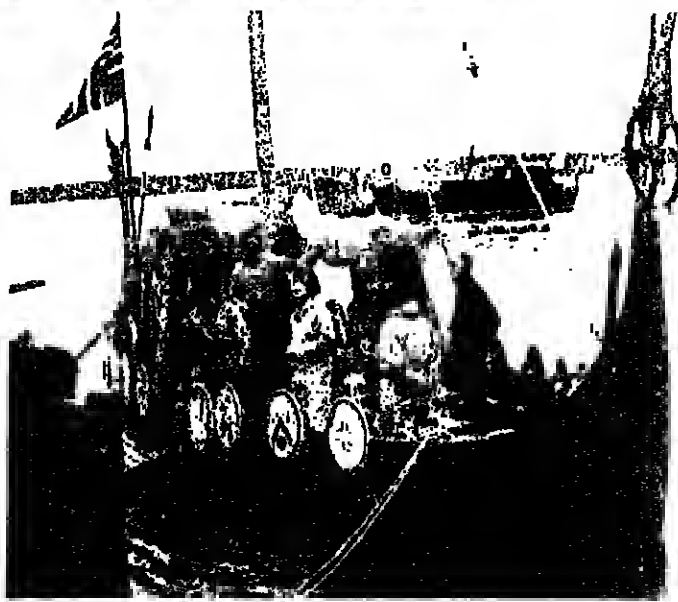
ON JULY 5, the Tynwald, the Isle of Man's parliament, celebrates its millennium, and the Queen will for the first time preside in her capacity as Lord of Man over the annual open-air meeting. The Tynwald claimed to be the oldest continuously sitting parliament in the world, established by Vikings from Norway 1,000 years ago.

To celebrate the historic link, a replica of a Viking long-boat was built in Norway and will arrive at Peel, Isle of Man, on July 4 after a 1,500-mile voyage from Trondheim.

The long-ship is a two-third scale replica of the Gokstad ship, disinterred from a burial mound and now on exhibition in Oslo. The picture shows the replica, christened Odin's Raven, preparing to set sail on its commemorative voyage.

The intrepid crew, 11 Monks and five Norwegians, are now tossing about under a square-rigged sail on the North Sea, having just completed the first stage of their journey, from Trondheim to Lerwick in the Shetlands. They plan to stop in the Orkneys, the Western Isles and to lay up in Dublin to ensure a punctual arrival in Peel.

The computer connection with this venture is somewhat tenuous. Companies with Manx or Norwegian connections were encouraged to sponsor shields on the side of the ship, and also items like oars and Univac, supplier of the Isle of Man government's celebrated 90/30 computer, obliged with £1,000 towards the £70,000 of the project, and has had its name emblazoned on a bright blue shield on the port side.



Controversy over benefits of WP

CONTROVERSY over the cost-effectiveness of word processing has heated up, with a claim by a UK local government officer that the unfavourable report on WP could be "grossly misleading" and at the same time a report from the US General Accounting Office indicating that government WP there has not increased productivity.

Jim Frankland, chief management services officer on Bradford City Council where a Wordplex shared logic system has been installed with considerable publicity and union difficulties (CW, March 8 and December 14, 1978) — is chairman of a Lamesac working party on WP.

In his view, the CCA report on a word processing experiment at Darlington (CW, April 19) will be used by critics of this new equipment to oppose the introduction of greater efficiency into government offices.

Frankland claimed the CCA report was unfair to WP because it did not make clear how much the difficulties were due to hardware problems that should have been surmountable, and also because he felt the experiment was not comparing like with like.

It was not clear, he said, that the WP group of typists and the control group using typewriters

were given the same mix of work. He also thought the WP operators were not given enough training, while the typewriter people were highly skilled at their job.

Derek Rowe, managing director of Abacus Computers, pointed to the CCA report as justification for his view that small business systems with some WP software were a better buy than special-purpose WP machines, which he said were "nothing more than another form of computerised business system."

The US government watchdog, the General Accounting Office, said that in a study of WP in 50 separate Federal offices around the country it had found widespread mismanagement and waste.

This was due, it said, to failure to carry out feasibility studies and studies of alternative equipment beforehand; planning studies on impact on staff; and

reviews of cost-effectiveness after installation.

Some departments such as Social Security and the Army, did, however, have good control procedures for WP, the GAO found.

Consultant Harvey Poppel, of Booz, Allen and Hamilton, New York, in announcing a multi-city study to be out on professional and executive productivity, reaffirmed the view that many organisations have invested in WP equipment and are obtaining no benefit from it.

Expensive machines were sitting unused in the corner in some offices, he said, because there was not enough room for improvement in the areas of work they had been brought in to tackle.

Trying to reduce the cost of support services is the wrong approach, he said, reaffirming Booz Allen's view that now technology must be directed to improving the productivity of managers and professional staff.

Growth path provided for NCR I-8200 users

NCR has added the I-8270 to the top of its I-8200 range of 18 bit minicomputers, providing a growth path for I-8250 users and a gentler bridge to the larger 8400 line.

The new processor is field upgradeable from the I-8250 and takes its memory capacity up to 512K bytes, and a maximum of 80 Mbytes of fixed and changeable disc storage.

Basic system price is £33,155, which includes a 256K byte main store, 10 Mbyte disc, 70 lpm matrix printer and one VDU. Other printers are available for

operation up to 900 lpm, and other peripherals include floppy disc, cassette and half-inch tape storage.

The system is a rival for the IBM System 38 and the Burroughs B800. It is available with a Cobol 74 compiler, can be linked to other systems in a distributed network, and uses NCR's range of interactive multiprogramming programs for retail, financial, manufacturing and wholesale distribution applications.

Deliveries are scheduled for late '79 in the US and early '80 in the UK.

Post Office is hit left, right and centre

CARRYING out a threat to respond swiftly to the suspension of staff by the Post Office, about 10,000 members of the Civil and Public Servants Association staged a one-day strike last week.

This was the latest action by the CPSA in its joint bid with the Society of Civil and Public Servants, to win wage increases of about 25% (CW, May 31). A corporation offer of 15% plus 3.5% to 7% for grade restructuring has already been rejected.

According to a union spokesman, the movement of Post Office stores has been hit badly. Stores central is normally handled by Hornonsworth, Midlandsex but this centre has been out of action for about eight weeks. The Post Office is attempting to get around the problem by using a manual procedure.

Real time micro package

A SOFTWARE package supporting the development of real time microprocessor applications using Coral 66 and Macrot has been announced by Systems Designers.

Called Context, the package provides facilities for developing Coral 66 programs on a host of PDP-11 running under RSX-11M. Object code can subsequently be down-loaded to the target microprocessor and tested under the control of the host.

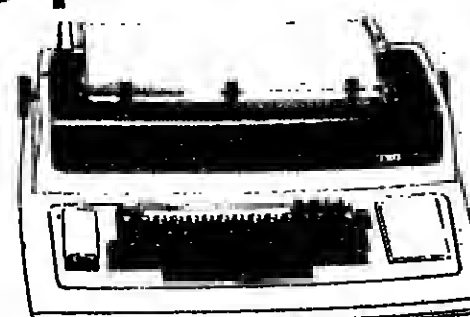
First target processors supported are the Digital Equipment LSI-11, TI 9900, and M8800; these will be joined shortly by the Intel 8086.

An important feature of the package is its close integration with Macrot. It supports Macrot design methods as well as the Macrot-inspired real time extensions to Coral 66 and the time microprocessor executive.

First UK order

THE first order for the latest addition to ICL's 2960 range, the 2960/10, has come from the London Borough of Merton, which is to replace its ICL 2960. Valued at £700,000, the new system will feature the Direct Machine Environment microcode emulation package so that existing 1902T George 2 systems can run unaltered.

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Briefing Hel to sell Omega line in Europe

ITEL is to sell in Europe the IBM compatible processors built in the US by IPL Systems of Waltham, Massachusetts. These are the machines sold in the US by CDC as the Omega series. An spokesman in San Francisco said that an "understanding" had been arrived at with IPL and that a formal announcement would be made soon.

He stressed that the deal would not affect ITEL's marketing agreement with National Semiconductor, manufacturer of the machines sold by ITEL as the Advanced System series.

Printers' pact

AN Australian agreement has been reached between the typewriter union and two major newspaper publishers allowing journalists and other staff to use keyboards, in return for a guarantee of no compulsory redundancies and a package of improved benefits. The determination of the NGA in Britain to retain exclusive control over keyboarding remains the fundamental stumbling block in the Times dispute.

Axe over NEDC

THE new government is examining the work of the various NEDC sector working parties and will prune any it believes found to be ineffective. Chancellor Geoffrey Howe told the Council at its first meeting with them. He affirmed, however, that he wants the Council's contribution to the Industrial Strategy to continue. NEDC Director General presented the Chancellor with a gloomy picture of the UK economy.

Minor and women

THE impact of microprocessors on women's jobs will be debated at next week's National Conference of Labour Women in Farnham. Tony Benn and Rona Short will be among the speakers.

Tandem price cuts

MEMORY price cuts of up to 15% have been announced by Tandem Computers of Cupertino, California, the firm that moved into the UK early last year with its multiprocessor minicomputer systems (CW, February 2, 1978). At the same time Tandem has said that it is to start charging a £3,350 licence fee for its Guardian operating system from July 1.

On the way

THE price advantage ICL gained by offering memory on its large systems at £80,000 per two megabytes (CW, June 7) could be short-lived, say US forecasters. It is thought that IBM will make price cuts of 15 to 20% on the 308X series this year, and that memory price cuts will be first. The present cost of £33,000 per megabyte could fall to between £17,000 and £12,000.

UK group leads with networking spec

AN important data communications specification, produced by a UK group of network users and researchers, has already found favour with international authorities. Known as "transport service", the procedure is a key element in open systems networking, enabling users to operate through one or more networks, both nationally and internationally.

The specification is the work of Study Group 3, consisting of network users working in co-operation with the Post Office, and copies of their work are available from the Data Communications Protocols Unit, which is based at the National Physical Laboratory at Teddington.

A transport service is provided by "transport stations" at each end of a link. These are

software packages which enable users to communicate via a network or across several networks without having to deal with the technical details or difference between types of network.

The SC3 specification includes details of implementation of an X25 network, but the transport service would appear the same to higher level service or user programs when implemented on other types of network, such as circuit switched, satellites or fibre optics.

SG3 has been studying problems associated with connecting to networks, and its transport service is aimed at providing a simple interface as an interim standard for initial users of the Post Office's Packet Switched Service and similar systems.

A transport service is an important element in the open systems interconnection, OSI, that is being developed under the auspices of the International Standards Organisation, the British Standards Institution, and by manufacturers including ICL (CW, June 7).

The DCPU was set up earlier this year by the Department of Industry (CW, February 22) to co-ordinate work on standards for distributed processing. It wants to attract user comment on the SC3 proposal so that a consolidated specification can be published in the autumn.

*A Transport Service, 57pp, free from: The Data Communications Protocol Unit, The National Physical Laboratory, Queens Road, Teddington, Middx.



Chairman of STC

WITH Standard Telephones and Cables due to become a publicly quoted company this month the managing director of STC, Ken Corfield, has been elected chairman of the STC board.

STC's parent company, ITT, has restructured its UK operations (CW, May 24), so that most of its telecommunications and electronics interests, including ITT Systems Systems, come under STC. About 85% of STC shares are to be made available to the public.

Lord Casella, previously chairman of STC, is now chairman of ITT (UK) Ltd, the group's newly created holding company.

STC now also has five new directors, including Jeff Semmes of STC's public switching group, which is working with the Post Office on the development of System X.

Multics orders begin to flow

HAVING plunged along with orders for no more than one or two systems for a decade, the large-scale Honeywell Level 68 Multics system is really beginning to take off. The trigger was the large-scale, inherently secure system in the revamped Level 68 DPS, introduced last autumn.

Since the first Multics in Europe was installed at Bristol for the South-western universities (CW, June 22, 1978) interest on the Continent has soared. CIL-Honeywell Bull has several universities interested in France, Germany and Scandinavia, and expects to announce firm orders shortly.

In Canada, following the installation of a Level 68 at Calgary University, three further orders have come in, while in the US itself, the motor industry, already a major user in design and engineering applications, has placed orders for several further processors. The existing users are Ford and General Motors, and both want additional multiprocessor configurations.

In Australia, there is also interest in Multics, with one company considering it as a system for software development — the engine of a "software factory". Honeywell has not given any

figures, but 18 months ago only about 20 Multics systems were in operation, with perhaps half of them in use within Honeywell. The first indication of sales levels is likely to come when the Phoenix factory reaches a major landmark, probably the 100th Multics processor (most installations are multiprocessor) or the 50th system shipped. One or other should happen within the next 12 months.

Filling in the South Bank

A RATHER unattractive pip on the South Bank of the Thames between the National Theatre and the London Weekend Television studios looks like being filled by IBM which has applied for planning permission to build a 300,000 square foot office complex to house data processing and support staff for London and the South East.

IBM bought the lease on the site in February from Associated Newspapers, owners of the Daily Mail, and has hired Dwyer London Redhouse and Dwyer as architects. Dwyer London is the multi-plot architect of the National Theatre next door and IBM says that the exterior walls of its five-storey building will be finished with concrete panels to blend in with the neighbouring buildings.

Subject to planning permission from Lambeth, work on the site is to begin in 1983, with completion in 1985.

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EEC law database planned

AN online legal information retrieval service is to be started in the spring of 1980 providing lawyers and businessmen with information on both statutes and cases, eventually covering all aspects of law in the whole EEC. Called Eurolex, it is being run by the European Law Centre in London and will use the Status II software package developed at Harwell.

Initially the database will cover only industrial property rights and major judgments affecting the EEC, either in the European Court of Justice or national courts. Other fields of law will be added gradually, in a process which will take some years.

Norman Nuon-Price, who has worked on Status at Harwell and has also been project leader of the EEC's study of legal retrieval, will be database director. Eurolex will run under MVS on BOC Datasolve's IBM and Amdahl mainframes.

Design of the system follows quite closely the proposals of the Society for Computers and the Law, which has advocated a national online system (CW, February 15). Its workings will be overseen by a consultative board of solicitors and barristers under the chairmanship of Lord Scarman.

Coral 66 aid

A CORAL 66 compiler has been released by Perkin-Elmer Data Systems for its 16-bit minicomputers, following the release last year of a version for the 32-bit machines. Fully compatible with the UK official definition, it is priced at £2,000.

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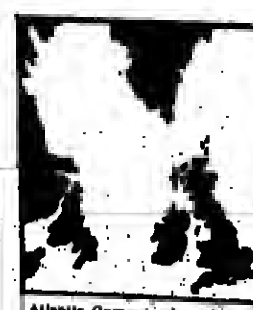
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Downtime

by Alan

Shall we join the ladies?

DURING the 1920s, Punch ran a series of cartoons under the title "functions at which we have never assisted," which featured things like the ceremonial "dumpling" of the past president at the annual meeting of the BCS. (I reproduce a modern sample of the genre below.)

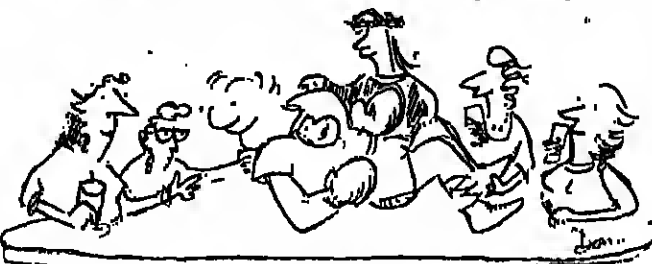
I imagine it is self-evident that among the functions at which I have never assisted is the annual Burroughs Lunch for Lady Journalists.

Computer Weekly was represented this year by a young lady who, I am pleased to report, does not regard it as an insult when people acknowledge that she is a woman.

She reports that once behind closed doors our female colleagues are apt to let their proverbial hair down and

that the function becomes decidedly boisterous at times. Burroughs was represented mainly by men, who indulged in plenty of verbal head-patting of the "now we're not here to worry your pretty little heads about computers" kind.

She also says that they try to play both ends against the middle by passing the cigars at the end of the meal (yes, she took one), but it seems to me that Burroughs must take extraordinary care over its guest list. In my experience there are some pretty formidable (pretty, formidable if you like) ladies working for the computer Press and if some of them got wind of the event next year there might just be another of those functions at which we have never assisted, namely "Bra-burning at Searcy's."



Functions at which we have never assisted: Passing the Punchgirl at the Annual Dinner...

Factors and facts

USUALLY when people get their gee-whiz data all wrong about the amazing power of computers, they overstate our wonderful machines' capabilities. Cf Clement Freud MP "One of these chips equals, 'oh I don't know how many hundred people!' (CW, January 4).

The Wall Street Journal, however, in reporting the astounding new development in Josephson Junctions which switch in 13 picoseconds, attempted to give a bemused public some idea

what a picosecond is by explaining, "Roughly, a picosecond is to a second what a second is to 30 years."

Pretty mind-blowing, isn't it? However, suspicious character that I am, I got the lads to check it out, and lo, the WSJ are out by a factor of a thousand. It should be not 30 but 30,000 years. So much for numeracy. Long live old-fashioned non-electronic arithmetic teaching.

Still, then there Josephson Junctions don't hang about. Makes you think, doesn't it?

The smell of chips

THE researchers who have been hired by the Equal Opportunities Commission to find out how many women will be put out of work by microchips (Downtime, April 5) have swung into action.

They are interviewing various secretaries around London to find out about their jobs, and every girl who takes part is given a bottle of perfume. An incentive, I suppose?

Product Bank is first fruits of Insac's plans, says Pearce

AT the end of Insac's first full year of operation its joint projects with member firms are already beginning to bear fruit. So said managing director John Pearce in introducing the annual report of the NEB's software marketing consortium.

Pearce outlined how Insac's initial five-year strategy had been modified during 1978 to the current two-path approach.

French eye on CII-HB

HAVING firmed up its deal to put together a joint company to manufacture semiconductor components with National Semiconductor (CW, December 7, 1978) the big French industrial conglomerate St Gobain Pont-à-Mousson is now eyeing the national mainframe manufacturer CII-Honeywell Bull. The 53% French stake in CII-HB is owned by Compagnie de Machines Bull, and St Gobain is interested in the 20% stake in Bull held by CGE.

CGE is however not prepared to sell, so St Gobain will probably need to make an offer for some of the 80% of the shares held by the general public.

The deal with Semiconductor involves establishment of a new company, Eurotechnique, 51% owned by St Gobain, which will manufacture National Semiconductor devices and design new circuits for the European market.

Factory start

WORK is expected to start soon on building the £15 million Neaton factory of GEC-Falchid, the newly joint owned semiconductor manufacturer. The company has started to recruit staff and hopes to finally employ some 1,000 people. Production, which will include both memory and microprocessor components, is scheduled to start next summer.

Police plans

A PROJECT to expand computer resources at Durham police headquarters is at present under consideration by a county council working party. Among the members of the working party are the Chief Constable of Durham and Home Office officials, and although no definite plans have yet been made or complete approval given, one estimate of possible costs is £800,000.

One activity is the Product Bank, which provides funds to member software houses to develop products for international markets, and the other is marketing viewdata system overseas, particularly selling the Post Office's Prestel in the US.

Financed from the Product Bank has gone towards such system software as SPL's Series 1 compiler for RTL/2, Systech's Vox 1 TP monitor, and interactive graphics products from SPL. Just under £1 million has now been invested.

Insac's books show an operating deficit of £1.3 million for the year, which Pearce said is to be expected at this early stage in the investment process.

Pearce pointed out that Insac is placing particular emphasis on the acquisition or establishment of distribution channels in key markets.

Market development is getting increasingly important, he said, and that is why the firm avoids investing in products which lack a clearly defined path to the end user.

DC-10 team re-creates death flight on simulator

WITH the dust still to settle following the loss of an American Airlines DC-10 passenger jet at Chicago three weeks ago, the aircraft's maker, McDonnell Douglas, is trying to re-create the flight on a simulator, to determine what actually happened when the port engine broke free.

Using its own simulator, first installed at the company's Long Beach, California, plant in 1969, McDonnell Douglas will be running a test program to try out simulations of the actual flight. Details of this will come from analysis of the aircraft's flight data recorder, a process being carried out at the moment.

In addition to establishing the problems the ill-fated crew had faced as the engine parted from the wing of the DC-10, the company hopes to discover whether it would be possible to still fly, and therefore save another aircraft in the same situation.

It is possible that if suitable flight procedures are found, they could be included in the flight training programmes of airline pilots. Simulated loss of power on engines is already a standard part of such training.

A spokesman for the company said, however, that the task it faces is a long one. The test program has yet to be written



PUPILS from the Longfield School in Kent demonstrate their skills on a microcomputer for the benefit of South-eastern teachers. They are (front to back) Gary George, Robert Butler, Nigel Fuller, David Bains and Alan Farley.

Pupils teach 'Sir' about micros

PUPILS did much of the teaching at a conference at Thames Polytechnic aimed at giving teachers an appreciation of computer education in schools using micros.

Michael St John, a teacher at Longfield School, Kent, brought along some of his 14-year-olds to demonstrate the computers to the teachers, who came from over South-east England.

Derek Easterson, computer specialist for the Inner London Education Authority, stressed the need for LEAs to have a definite policy on DP education. The ILA has decided that all schools should have the same machine, namely the Research Machines 3802, in order to make exchange of software easier.

St John said that local industry is becoming aware of the value of supporting school DP.

HP software centre in UK

CITING its belief that "the UK is the leading country in the world for software engineers", Hewlett-Packard is to set up a software development centre close to its existing sales and service centre at Wokingham.

Involving an investment of about £8 million, the plan is for 100,000 sq ft office to house around 500 staff. While many will initially be recruited from the US, HP hopes that many of the centre's staff will be British.

Five performance levels key feature of Univac 1100/60

THE new Univac 1100/60, exclusively previewed in Computer Weekly (CW, May 17), has been announced in one and two processor configurations with CPU and one Megaword of main memory in a single cabinet. Versions with up to four processors are likely to be introduced.

Compilers, support packs unbundled

THE 1100/60 marks Univac's move into unbundled software, the policy being that the operating system will continue to come to the hardware, but that all compilers and other support programs will in future be charged for.

Existing users in general have five years' grace before they have to start paying, although a few people with one-year contracts will have to start paying sooner. The new rules apply right across the 1100 line, not just to the 60 series.

Three major new software products have been announced to the 1100/60: DMS 1100, a Data Dictionary for DMS 1100, and an enhanced version of the DTP, query language processor.

DMS 1100 represents a great leap forward for terminal users since it enables the same terminals to be used both as a transaction processing terminal and a demand terminal; previously two terminals were needed.

Univac believes that the Data Dictionary will significantly enhance areas of use and productivity, while the enhancement of DTP, which previously supported only accesses to DMS 1100, can now be used to access any files. It also offers expanded report writing capability.

NCR to set up software queries centre for 8500s

FORMALLY launching NCR's new line of 8500 series mainframes in the UK, its UK managing director Rex Fleet has confirmed that NCR will be setting up software support centres to answer software queries by telephone. The plans were first revealed when the new 8500 machines were unveiled earlier this year (CW, March 8).

The new 8500 systems are NCR's response to IBM's 4300 series announcement earlier this year and the software support centres will be similar in concept to those proposed by IBM for 3800 users.

No charge will be made for solving software problems over the phone but the customer will be billed if a visit by a systems engineer is needed. The centres will not be up and running until next year, according to Fleet.

NCR's operating and systems software is already unbundled, but with the new 8500s, the company has introduced a new pricing of each system element, including an annual licence fee plan for the firmware that provides each 8500 system with its multiprocessing capability — the most important feature of the new machines.

The firmware licence fee will range from £900 to £5,840 a year depending on the model. Each of the four members of the new 8500 line comes in two models, one of which is a single

processor machine capable of being expanded to a multiprocessor version. The earlier 8500 series machines were also available in multiprocessor versions but NCR explains that they were loosely coupled and had separate memories and ran under separate operating systems. The new MP machines come with tightly coupled processors sharing the same memory and the same operating system — VRRX-MP.

The smallest member of the new line is the V-8555M which is about 30% more powerful than the earlier V-8550 while costing 49% less. NCR points out that the V-8555M offers 47% more power than the 4331 at 10% more cost. A half Megabyte costs £80,800 and NCR charges £7,150 for an additional half Megabyte.

The multiprocessor model, the V-8556MP, with two processors costs £163,100. At the top end of the line is the V-8558MP, with two processors cost £259,000, compared with £225,000 for the V-8555M, but offers 1.7 times the throughput. The V-8558MP in turn is rated 85% more powerful than the earlier V-8550 while costing 20% less.

The basic two Megabytes of the 8558 machines can be expanded to a maximum of six Megabytes in one Megabyte increments costing £14,500 each.

Univac estimates that the C2 model with extended instruction sets matches the power of the IBM 4341 and claims that when the latter is run under DOS/VSE (price/performance are equivalent) under VS/1 or VM, the company claims a 10% performance edge at the same price.

Univac claims an exceptional 17% to 86% performance on

enhancement when a second processor is added; 70% improvement for the first additional processor is typical.

As a result the performance range over the 1100/60 line is claimed to be 5 to 1, and for the biggest, four-processor 1100/80, 12 to 1. Against IBM, the 1100/62 dual processor is claimed to exceed performance of the 3031.

The use of multiple bit-slice architecture processors in the CPU makes for exceptional reliability, with every processor function duplicated by a shadow processing unit which checks the performance of the master.

There is a total of 88 Motorola 10800 four-bit micros in the CPU, configured into half-word processors executing three live and three shadow streams in parallel.



ABOVE is Univac's latest offering, the 1100/60. It features LSI technology with a multiple microprocessor based architecture.

Bit-slice chip used in coms processor

NEW with the 1100/80 is a new 16-bit communications processor, the DCP/40, which is built of the same Motorola 10/800 4-bit bit-slice ECL microprocessors. The DCP/40 is attachable to all 1100s and to 90 series machines running under VS/9.

It was designed for use as a front end communications processor offloading all communications functions from the mainframe, a node processor in a network, and as a terminal concentrator.

It is user programmable in a machine dependent macro assembler with programs being down loaded from the mainframe. It offers an emulation mode for the existing DCP processor but is a completely new design.

The processor is a key feature of Univac's DCA distributed communications architecture which supports the international X25 and X21 protocols.

Also announced with the 1100/80 is a new fixed disc subsystem, the 8470, with a capacity of 125.4 Megawords per drive and up to 4,000 Megawords per subsystem. A new 0778, 1,200 lines per minute printer has been added together with 2 new tape units.

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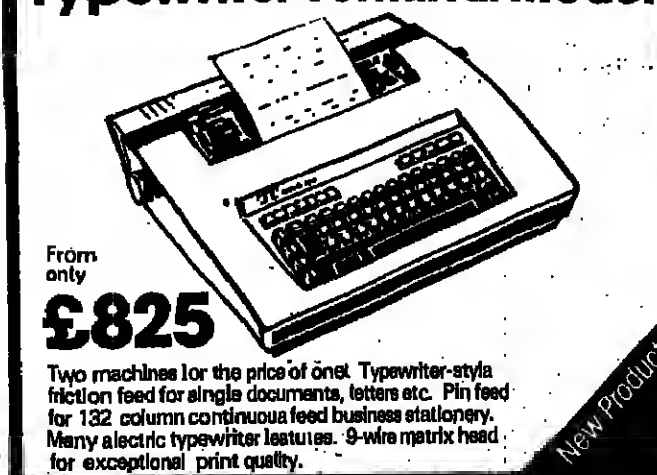
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Software 10/80

OP SPOT

Monitor: a command which is seldom fully exploited

BY means of the IBM OS Monitor command, the operator is able to find out a considerable amount of information about the state of the system, but at many installations this facility tends to be seldom used.

To save the operator an unnecessary amount of typing at the console, the command may be abbreviated to MN. Here are some applications for the command.

MN Jobnames, t
This command will cause the system to issue a message to the operator, including the jobname and time of day, each time a job starts and finishes.

Incidentally, the above command is one which tends to be widely used among IBM OS operators. Rightly so, in my view, because the information it provides is often of use to operations staff when dealing with user inquiries.

As an alternative to the above, the operator might use Monitor

to get a dynamic display of all the active jobs in the system. (By "active" I mean all the jobs actually competing for processor time, and not those on the system input and output queues.) The command is as follows.

*** MN A**

It is also possible to get a dynamic display of all the jobs on the system input and output queues, thus.

*** MN N**

And to get a dynamic display of the number of jobs on the system input and output queues, the operator enters.

*** MN Q**

As described in a recent Op Spot hint (CW, May 24), Monitor may be used to display the status of a job's datasets at the time of its termination. The command is as follows.

*** MN DSNAM**

Similarly, it may be used to display the status of each job's

kept, catalogued and uncatalogued datasets at the end of each of its job steps.

MN STATUS

And Monitor will cause the available space on a direct access device to be displayed as it is unloaded by the system.

MN SPACE

"Before entering these commands, the operator must set up a display area on the console and specify the rate at which it is to be updated. He does this by means of the IBM "K", or control command, in a two-step procedure.

1) This command tells the system to set up a display area of six lines.

K A,06

2) And the following instructs the system to update the display every 30 seconds.

K M,TIME=30

By Bernard Allen

'Unions more help than job-hopping'



Tim Webb

Astral Computer Services, a bureau in the City of London (CW, May 24).

In essence, he said that there is no need for DP staff to become involved with unions and that if an operator is dissatisfied with his site he should move to another.

Replying specifically to O'Reilly's comments, Tim Webb of ASTMS said, "Whether or not you are in favour of unions, his advice is downright daft."

And, according to Webb, an employee must be with a company for at least two years before he can appeal against unfair dismissal or receive compensation in the event of redundancy.

Pointing to the benefits of union membership, he continued, "Under the Employment Protection Act, union members must be given at least 90 days' notice in the event of redundancy."

"And under the Health and Safety at Work Act, the employer must consult the union about changes which might affect the well-being of staff. The VDU issue is very important in this regard."

Responding to O'Reilly's comments by saying, "That seems a rather short-sighted view to me. Someone who's had more than two or three very short-term jobs can't have very rosy career prospects because

companies will be reluctant to employ him."

He also gave his views on how union involvement will help DP staff deal with the effects of new technology over the next ten years.

"If the new technology affects anyone, it affects computer staff — and that includes the operator."

"And I can see the changes of the next decade being at least as dramatic as those of the last," said Benson.

Referring to the activities of AUEW/TASS in this context, he went on, "Our members go on training courses intended to help them overcome any problems which might occur as a result of microelectronics."

"The courses are funded by the Engineering Industry Training Board and held at colleges of further education."

According to Benson, the EITB courses are open to



Ian Benson

members of all engineering unions.

Reinforcing the views of Webb and Benson, H. Moore, a DP staff representative with APEX, writes, "The chief operator you quote is entitled to his opinion, but he must surely be disappointed if he believes any operator worth his buttons will be converted to his non-union views."

By involving themselves with unions, operations staff can do much to improve their lot, he adds.

Health problems do not deter BCS Ops Group chairman

DESPITE recent poor health and a change of job, Barry Patman is to continue as chairman of the operations specialist group of the British Computer Society.

Patman, who resigned from his position as operations specialist with Infotech in April, told me:

"Soon after leaving Infotech I went for a routine medical check-up and had to go into hospital to be treated for a her-

nial. Unfortunately, there were complications and I won't be fully fit for some time."

He is currently seeking a position, possibly in operations management, in or around the West London area.

Said Patman, "If I get a position in that area, I will be able to get things moving again in the operations specialist group."

Looking for jobs in Midlands

OF the 23 students who attended the recently completed TOPS operations course at Borehamwood College, four are still seeking positions in the computer industry.

Two of them have their own transport and are prepared to relocate but the others are more restricted, according to Derek Pinnock, TOPS operations lecturer at the college.

He said, "The boys from Great

Bosington in Hampshire have their own cars and are prepared to move to most areas for a right position."

"But Arun Patel, who came from Luton, and Whithead who lives in Wokingham, are looking for a job in or around their own areas."

For further information, contact Derek Pinnock at Borehamwood College, 0024

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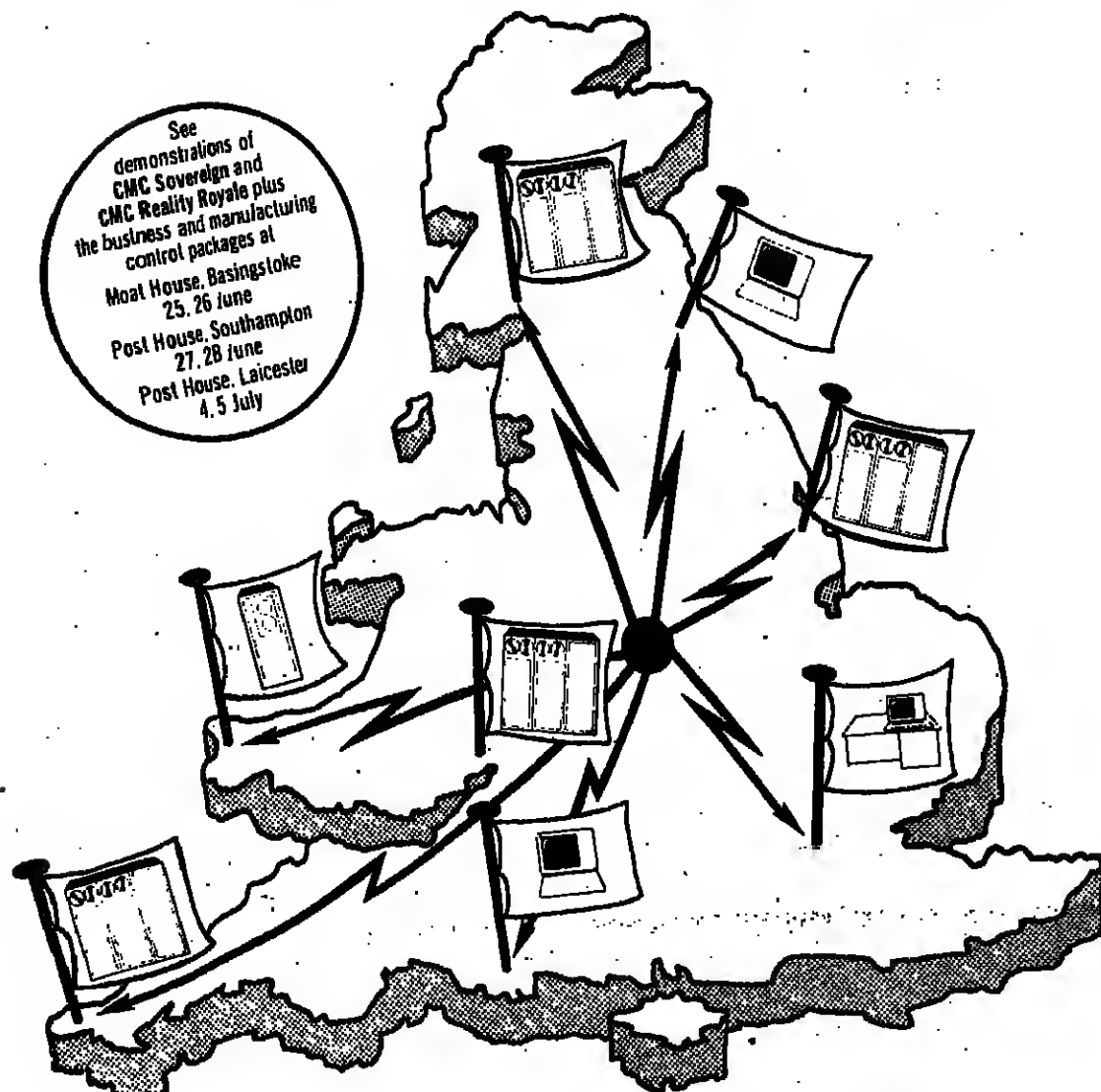
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PEOPLE AND EVENTS



Appointment to board at IBM UK

IBM UK Holdings and IBM UK have announced the appointment of John Barrie Morgan to their boards. He is currently IBM UK's director of finance, and has held this position since 1978.

Morgan, who is also a member of the board of IBM UK Rentals, joined IBM in 1967, starting as cost accountant at Havant Plant, and spending some time in Paris where he was financial operations manager for IBM Europe. In 1975 he became controller of IBM UK.

He has also worked for the Steel Company of Wales and for British Rail.

Alan Studholme has joined Rediffon Computers as territory manager for the Midlands branch. He was previously an employee of Barrie Computing Services as territory salesman. Branch manager for the Midlands branch is Philip Moore, a former marketing manager for Irel in the State of Victoria, Australia. Robert Allerton has become territory manager for the Northern branch, having joined Rediffon from Donoghue Information Systems where he was a sales executive.

Carol Hearn has become regional sales manager for London and the south-eastern Home Counties for Nashua Computer Products. She will operate from Loughton in Essex, and will be responsible for sales and marketing of all Nashua's magnetic storage media. Hearn used to work for Geetec Duplinox as a saleswoman.

Arthur Cannell has joined the data communications division of Harris Systems as a systems engineer for the 8000/1800 range of distributed processing and RJE terminal systems. He was formerly software development manager with Thomas de la Rue.

KEYPACK. A Key to Disk system with RJE & batch processing.

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By Judith Morris



A Winston Churchill Trevellick Fellowship grant, worth £2,400, has been awarded to Brian Payne, who is a blind senior programmer with the Data Processing Service. He is seen here using an Optacon, bought for him four years ago by the Post Office, which is a device allowing blind people to "read"

documents. The effect of this device led Brian to form Electronic Aids for the Blind, a registered charity.

He is to use the money touring America, and visiting several manufacturers who specialise in electronic aids for the blind.

ICL award for NELS student

A FORMER student at the North-East London Polytechnic, Ajay Jahanputra, has not only received his IIND in Computer Studies, but has also won an ICL prize of £20.

ICL award the prize annually to a student from the North-East London Polytechnic's systems and computing department who has made the most significant contribution during the final year of the course. Ajay followed a sandwich course, and spent his second year with ICL. He gained four distinctions in his computer studies course, and has now put to job as a programmer for the Borough of Southwark.

DIARY

JUNE 14
Computing in structural steelwork. Institution of Civil Engineers, Great George Street, London SW1E 6AD.

JUNE 18
World fertility survey: technical problems of international research, and AGM. Study group on computers in survey analysis. London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT.

JUNE 18-21
Computer applications in shipbuilding. 1978 International Conference ICCAS. University of Strathclyde, Glasgow.

JUNE 18-21
INMM '78 Exhibition and conference. London Chamber of Commerce, Queens. Contact: Cliff Land, London Chamber of Commerce, 71-73 Old Bailey.

JUNE 20
Why will we use the general purpose computer? IDPM. Pearl and Dean Studio, Broadwick House, Broadwick Street, London W1F 12Q.

New approaches to systems analysis and design. IL Gearing, E. Mumford BCS. Kensington Cinema Hotel, London W8 6NS.

Distributed processing. North East London Polytechnic, Barnaby, Dettell 01 500 5144 ext 42.

JUNE 21
Pattern recognition and finite automata. J. Weaver, Oxford University. Nuclear Physics lecture theatre, Keble Road, Oxford, OX1 2JH.

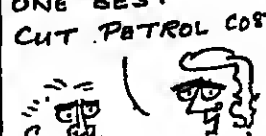
Liquore File

By Don

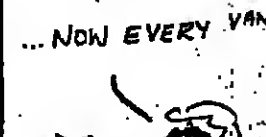
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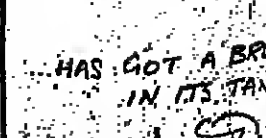
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LETTERS TO THE EDITOR

Govt aid to ICL no longer needed

YOUR editorial "The sell-out of the century" (CW, May 31) plays an unusual lack of economic understanding.

You assert that ICL is a "national asset". What does this mean? Why pick on ICL? Is ICL a national asset? Or Computer Weekly?

If you are simply referring to

companies in which the government happens, at a particular moment in time, to have a shareholding, this is no argument to support your case that that shareholding should not be diminished.

It is not true to say that the investors will now reap the benefit of public investment. Those

people who have (wisely) invested in ICL in recent years have indeed seen a good rise in the value of their shares. If the government now sells some of its shares, the immediate benefit will be to the government (ie the taxpayers) since the selling price will be higher than the buying price.

To consider your final and most important point, it is important to ask why have the "high risks" deterred investors. Investors are certainly not deterred now from investing in ICL, so arguably the government's aid has served its purpose and is now no longer needed. The government shareholding in ICL can therefore be redeemed and put to better use. Such a use could be in reducing income tax, and in removing or reducing capital gains tax and tax on dividends.

J. S. GRANT

Nine Tiles Information Handling
Cambridge.

Bexleyheath,
Kent.

J. WATERS

IBM—no plans to manufacture in SA

YOUR article "South Africa: likely to be the last in Manufacturing" (CW, May 31) contains a statement which may mislead your readers. In that it may give the impression that IBM is engaged in on-going activities with regard to

manufacturing in South Africa.

To clarify the situation we should like to state that we have no plans to build a manufacturing facility in this country.

JOHN CLARKE
Managing Director
IBM South Africa.

Committee's principles for privacy won't work, says Scottish Law Society

THE legal principles for computer privacy proposed by the Data Protection Committee could make relations between a solicitor and his client "almost impossible," the Law Society of Scotland has claimed in its submission to the Scottish Home

and Health Department, adding that relations between the Law Society and its members could be detrimentally affected.

The DPC failed to give adequate regard to the rules that govern the professions, the Society claimed, and to the ways

in which the law operates differently in Scotland from the way it does in England. There would be grave problems, in the view of the Society, if a solicitor were obliged to disclose to his client all documents on his file. These might include medical and psychiatric reports, and papers passed to him by other solicitors.

The operations of private law firms posed no threat to privacy, the Society felt, and should be exempted from registration.

The Society also expressed concern over the control of medical records and employee references. There was no point in allowing patients access to their medical records if all diagnosis and prognosis were excluded. Also, references would become useless if they had to be disclosed.

The Society also expressed concern over the Data Protection Authority's ad hoc discretionary right to decide such matters as whether patients should have access. If there were such a right it should be embodied in legislation.

As there was no way of telling what would and what would not fall within the ambit of the regulations, it was impossible to estimate what the costs of privacy laws would be.

Since the change of government, the Home Office is continuing its gathering of views on the DPC proposals, but the Tories have not yet decided whether they will do anything about legislation.

Digivision display unit rejigged

IMPROVED picture quality over earlier models of this 90-column Executive Monitor is claimed by its maker, Digivision of Leicester, since discarding the acrylic screen filter in favour of a plain cathode ray tube with a bonded face plate.

Modifications have also been made to the control box which can be housed in a desk or a 19-inch rack.

As well as displaying data such as computer output in alphanumeric form, the screen can be used as a closed circuit TV monitor. Priced at £280, the unit is designed to be unobtrusive and at home in plush surroundings.



A system for estate agents

A COMPUTER system designed specifically for the estate agent has been developed by Sword Data Systems in conjunction with Rair. Available in two versions, it features the Rair Black Box microcomputer system and a VDU and printer. One costs £5,950 and has a Decprinter IV,

while the other costs £8,955 and has a Hytten printer. Basic software handles the day-to-day routine work of an estate agent's office but Sword says that other applications, such as text processing, invoicing, and financial ledgers, will be available later.

The European EDP Forum

SYSTEMS 79

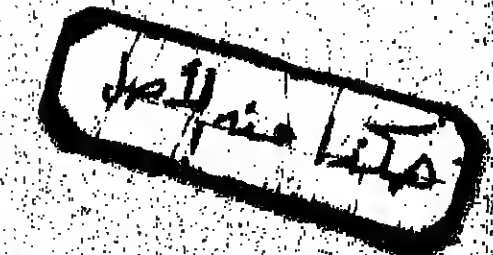
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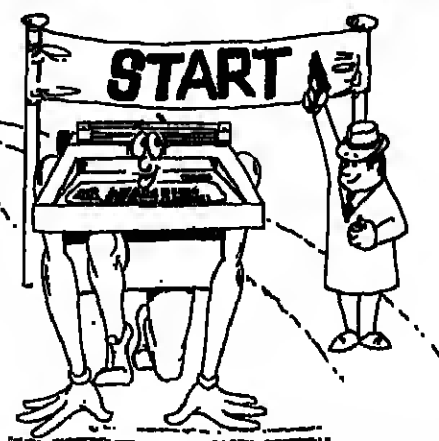
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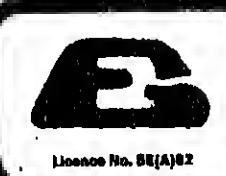
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TIM PALMER AND CHRIS HIPWELL REPORT FROM NCC '79

AS the NCC closed its doors on Thursday last week with a record attendance of 78,843, nearly 38% up on Anaheim last year, the overall impression was of a non-vintage show.

Most of the products had been heavily pre-announced and, of the major launches, only the Univac 1100/00 and the Wang VS-100 and VS/WP really stood out as major advances.

Probably not more than one visitor in 100 even discovered an enormous overflow

exhibition area 15 hot minutes' walk away from the Coliseum at the Hilton, where major companies like Fairchild and Fujitsu were among scores of late entry exhibitors.

The personal computer fair held at the Sheraton Centre Hotel has also lost almost all its amateurish enthusiasm and is now just another big trade fair, ripe to be hived off from NCC and held at another time.

Many individual conference sessions were stimulating and controversial, but the lack of any strong overall themes and a studious

determination in choice of papers and subjects to avoid acknowledging the overwhelming domination of IBM over the industry seriously weakened its overall impact.

Despite these reservations, the NCC remains the premier US computer event, and a must on the schedule of everybody seriously involved in the industry. The only confident prediction that can be made for NCC '80, due to be held at Anaheim, is that there will once again be more exhibitors playing to more delegates than ever before.



Above is Honeywell's PPS 11 page processing system. It operates at speeds of up to 600 pages a minute (18,000 lpm) and is compatible with IBM and Honeywell mainframes.

8-inch Winchester plugs OEM gap

PUSHED to meet demands of the booming OEM and systems house business in the US, hard-core manufacturers are seeking to close gaps in the spectrum of memory devices available to the systems builder.

The result, particularly evident at the NCC, is the emergence of an 8-inch Winchester

drive. These units, which are based on the Winchester 3350 technology originally developed by IBM, provide greater recording density, more tracks per disc surface and a faster transfer rate than the 8-inch floppy disc.

The combination of the Winchester read/write head and the fixed disc makes for an inherently more reliable subsystem. Five to six times the reliability of present fixed and removable drives at around one third the cost, has been claimed.

Companies which have introduced 8-inch Winchester drives include BASF, International Memories, Kennedy, Micropolis and Pertec.

The BASF 8170 series fixed disc drives, which are initially being manufactured only in the US, offer recording capacities of 8 to 24 Mbytes and a transfer rate of 800K bytes a second. Both International Memories and Pertec have introduced 20 Mbyte units, with Pertec's D8000 drive operating at a transfer rate of 870K bytes a second.

The Kennedy Series 7000 Winchester disc drive stores up to 12 Mbytes of data on two platters and the Micropolis Micro Disk 1200 series stores from 55 to 44.8 Mbytes on up to three discs.

The Micropolis series is particularly impressive with a wide range of options in terms of encoding methods, recording densities and storage capacities.

Also on the disc front, New World was promoting a 2.1 Megabyte 8-inch disc with 20 heads in a 9.5 by 9.5 by 2 inch enclosure which gives a very fast 18.8 millisecond access time and worst case 51 milliseconds. Called the Mikro-Disk 211, it costs under \$1,000 in quantity.

Graphics advancement

THE addition of a graphics print-out capability on the Data-products T80 thermal matrix printer has excited considerable interest in the personal computing market.

The OEM printer specialist showed the T80 attached to an Apple II personal computer, outputting a variety of pictures using a 70 x 70 dots per square inch matrix.

The printer is driven by an internal Intel 8035 single chip microcomputer which has 256

bits of on-chip ROM, and extra memory has been added to support the graphics feature.

Applications envisaged include low cost printouts of medical scans, vibration analysis in laboratories, and producing hard copy of screen plots in computer-aided design.

A commercial artist is already using it to produce the monochrome colour separation overlays to take to the printer, thereby, he says, saving considerable time and money.



Burroughs' 88270-35 electronic page printer, operates at speeds up to 18,000 lpm.

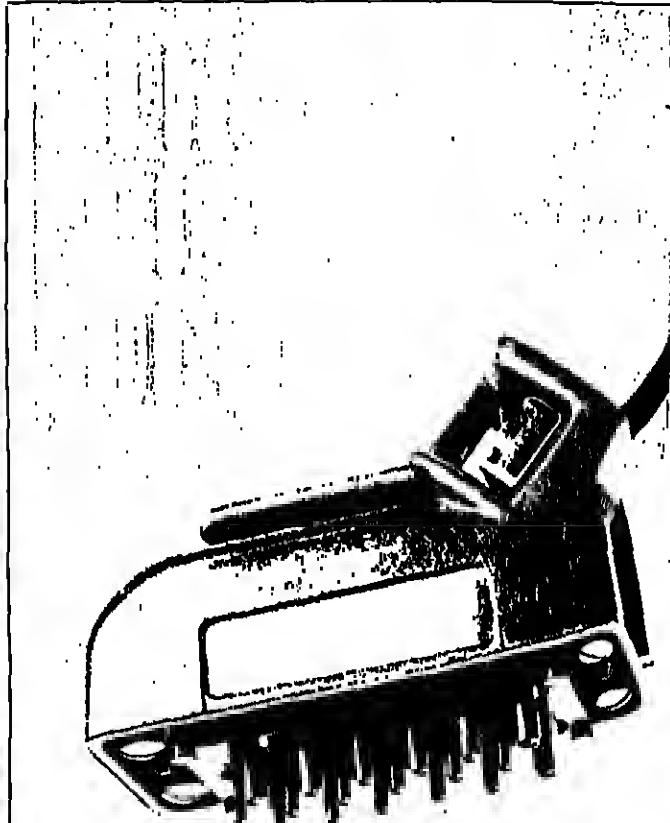
Fujitsu featured its M2284 drive, which carries 166.5 Megabytes and has only one competitor — Control Data.



Pertec's D8000 8-inch fixed disc has a capacity of up to 20 Mbytes. It is small enough to slot into the same space as a floppy disc drive.



Harrie has added the 5880 and 5870 to its 5800 range of small business systems. The 5880 can support up to 96 terminals and the 5870 up to 128 interactive terminals.



One Day Conference, 12 July 1979 Wembley Conference Centre

Tomorrow's office will incorporate communicating image and word processors; intelligent copiers, high capacity electronic filing systems and on-line information access from both internal and external databases.

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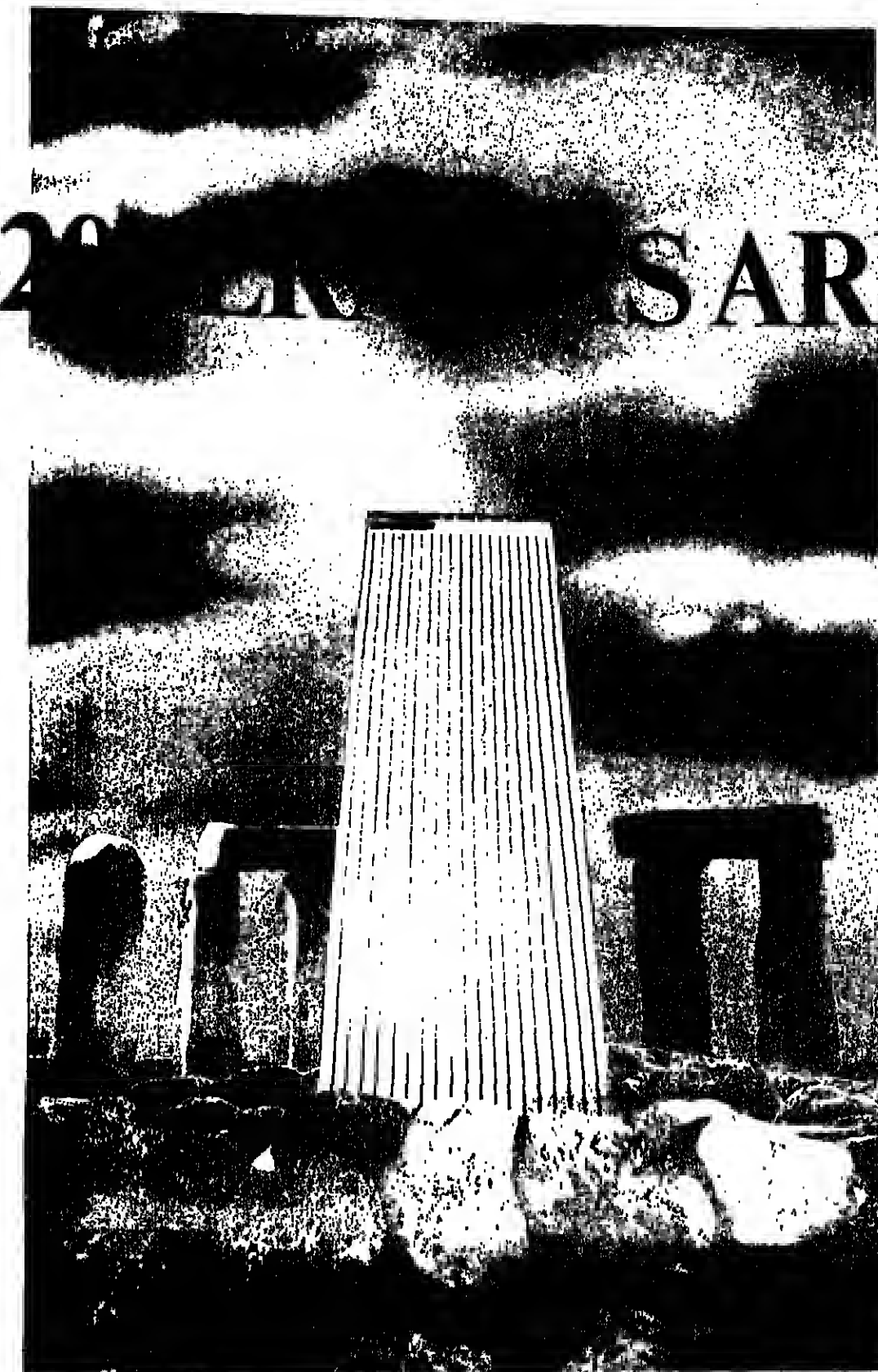
This event, together with a one day conference entitled The People Factor, and eight half-day seminars forms part of the INTERNATIONAL WORD PROCESSING EXHIBITION AND CONFERENCE.



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To match the most advanced hardware, Perkin-Elmer 32-bit software has been refined and proven where it counts — in the field. This powerful software includes OS/32, a real-time, multi-tasking operating system, together with a host of language processors and utilities, including COBOL, globally optimising FORTRAN

VII, BASIC, CORAL66, ITC transaction monitor and OS/MTM for multi-terminal program development facilities.

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TEXAS INSTRUMENTS
LIMITED



Steeplechase competitors at Sunday's heat surpassed those at Kirby the previous week. Here there was a multiple pile-up (?) at the water jump, thus disturbing the murky depths.

Cook's wins tour to Crystal Palace

TRAVEL bureau Thomas Cook left its rivals way behind in the Mens section of the East Anglian heat of Computastars on Sunday.

Held at the Cambridge University Athletic Club's grounds, organiser Gordon Cairns said that it was the friendliest heat he had been to. Cook's, with 153 points, will be joined at the Palace by Providential Mutual Life who only best the former's Ladies team by 0.33 of a point.

This it got thanks to J. Evans who came first in all her events bar the steeplechase when she came rather near the end. She also won the individual events. In the team events, after grabbing the lead in the cricket ball throwing competition, Providential Mutual looked like being easy winners. Cook's fought back hard but failed to grab a share in the honours by a fraction of a point.

In the Mens individual events, Paul Bownes, a Cook's programming team leader, put up a tremendous fight and was as-



sured of victory by the penultimate event — the steeplechase being a formality for him. Many must have been surprised to learn that BCS Scunthorpe was in the East Anglian heat. It was rumoured that the team fancied a long weekend out on the firm.

The Mens secondary competition pulled nearly as many laughs as the steeplechase did. It consisted of negotiating an obstacle course while, at the same time, doing contortions with a rugby ball which was not to touch the ground in the shortest time possible.

One enterprising competitor, Keith Victory of J. H. Minet, stuck it up his T-shirt. This caused many suggestions as to his sex and his health by fellow competitors. As the finalists,

Allen Computers and J. H. Minet were so close Organiser Cairns decided to allow them both through to the final.

TEAMS
British Steel Corp, Scunthorpe; Thomas Cook, Peterborough; Data General, North London; Eastern Counties Newspapers, Norwich; GEC Computers, Borehamwood; J. H. Minet & Co, Woudford; Northants County Council, Northampton; Norwich Union, Norwich; Providential Mutual Life; and Roneo Vickers, Ilford

RESULTS
Mens team events — 1. Thomas Cook 1, 153 points; 2. BCS 118.5; 3. Norwich Union, 104; 4. J. H. Minet, 103.5; 5. Eastern Counties Newspapers, 98; 6. Providential Mutual, 95.3; 7. GEC Computers, 91; 8. Northants, 87.9; 9. Roneo Vickers, 84.5; 10. Data General, 84.5

Mens individual events — 1. Paul Bownes, Thomas Cook 40.5 points; 2. J. H. Minet, 38.5; 3. Robert Jones, BCS, 38; 4. Keith Victory, J. H. Minet, 37.5

Mens secondary competition — 1. Allen Computers, 62.1 minutes; 2. Roneo Vickers, 62.4

Ladies team events — 1. Providential Mutual, 74 points; 2. Thomas Cook, 74.67; 3. Norwich Union, 71; and 4. GEC Computers, 68.16; BCS, 68.16 (both placing)

Ladies individual events — 1. J. Evans, Providential Mutual, 42.2; 2. Rosie Caplan, Thomas Cook, 42; and 3. J. Fielding, GEC Computers, 42



ABOVE — winners of the Mens event were Thomas Cook 1 who "borrowed" a company flag in the steeplechase event, and doing the rugby ball in the obstacle course. Here, a Paul Bownes, who won the individual competition.



LEFT — causing as much merriment as the steeplechase event was the secondary competition which consisted of negotiating an obstacle course with a rugby ball over an obstacle course. Here, a Paul Bownes, who won the individual competition.



BELOW — adding to the merriment was the secondary competition which consisted of negotiating an obstacle course with a rugby ball over an obstacle course. Here, a Paul Bownes, who won the individual competition.

SOFTWARE TRENDS

Giving users more 'friendly' access

By Michael Powell

ON a crude analysis, there are approximately 800 UNIL 360 or 720 computers in the UK. If the average number of discs on these computers is put at 100, the total amount of data held is approaching 80,000 Gigabytes.

Assuming that there is three times as much data on tape as on disc the total is 1,000 Gigabytes of data on IBM machines alone, which constitute only some 30% of the UK computer population. So in all there is probably at least 3,000 Gigabytes of computer-held data in the UK today — or 50K bytes per head of population.

However inaccurate the above analysis may be, the orders of magnitude are correct. The sheer scale of the modern reliance on computers is awe-inspiring.

How could a large bank, for instance, possibly hope to do the amount of business in the speed required to have viable cashflow, without computers?

Even the most humble companies are becoming increasingly reliant on this ubiquitous machine.

But all this is fairly recent. Even 10 years ago the figures would probably have been only about 100 Gigabytes per head.

This "information revolution"

has been accompanied by changes in the conventional ways of accessing data.

In the Sixties data processing was strictly the province of experts. The user was merely consulted on the data contents, and in what specific reports were needed. After that the data processing departments took over and did all the work.

Easytrieve, we entered the era of "user friendly" reporters.

These generators have an English-like syntax, are used daily throughout industry and enable the users to access and report on data with the minimum of processing training.

With the second generation tools, assuming a user can discover which file or database

syntax for the user to correct as necessary.

This whole process can continue until a mutually satisfactory definition of the problem is reached.

Thus the user inputs his request:
PLEASE PRINT NAMES OF ALL EMPLOYEES IN SOUTHERN SPAIN

trieve. Thus the user can edit the resulting program at will, without the need to understand the intricacies of the syntax.

Naturally, in practice this requires a dictionary capability and a fair degree of syntactic understanding by the machine, but the pay-off is that an untrained user can use the machine both to help him define exactly what his problem means and to create an effective solution.

This then is the key to the whole discussion. Not only does the problem have to be turned into a computer acceptable program, but it also needs to be properly defined to the user himself.

In this way the danger of producing a completely wrong report because of a misunderstanding by the programmer or analyst can be averted, and valuable man hours saved.

This is a personal view of the direction which the access of data will take. Whatever happens, one thing is sure. All those Gigabytes of data will continue to grow, as will the need for more effective means of accessing it.

Products like Easytrieve, the second generation of ad hoc reporters, will be refined until the user can really say: "Now you're speaking my language!"

The machine, recognising **NAMES AND EMPLOYEES** asks: **DO YOU WANT THE PERSONNEL FILE?**

The user replies: **YES**
After more such questions and answers the result is:

**FILE PERSONNEL
IF REGION = 5
LIST NAME**

The problem definition has thus been converted into a high level syntax from which the machine can generate the desired information.

Notice that the user's problem is redefined in an English-like way, in this case using Easy-



Powell

A RECENT estimate put the shortage of programmers in the UK at around 20,000. And the explosive growth in computer ownership is likely to widen still further the gap between supply and demand.

In this first article, Michael Powell, regional sales manager for Ponsopha Systems in the UK, gives a personal view of the effects of the "information revolution" on the tools used to access data.

He argues that improved price/performance will open the way to a new generation of "intelligent" software tools, which will lead to even higher programmer productivity as well as giving end-users more "friendly" access to computer-held information.

Managers' guide to planning a database

DATABASE software has now been installed on more than 1,000 machines with most mainframes or large minis supporting at least one database package.

The technology of databases has thus passed the pioneering stage, and the principles have now been understood, at least in general terms, by most data processing practitioners.

The questions which managers will want to have answered at this stage include: are databases worthwhile for us; for what applications; which software products should be considered; what broad systems, software, and design strategies should be followed in intended projects; and, what are the correct priorities for different applications?

The first problem encountered by any manager comparing databases with conventional file-based systems is that his staff may have limited or no experience in evaluating or using such techniques.

For this reason I have concentrated in this article on planning the study project. Such initial planning is crucial in defining the elements and therefore the usefulness of the whole study project.

What is database planning? Obviously the answer will differ for each installation, but in general it would have to include deciding whether to employ

ALTHOUGH database management systems have now been available for over 10 years, many installations have yet to take their first steps with the technology. One critical problem is the evaluation of potential benefits in the absence of relevant database skills and experience.

In this article, DAVID TEBBS, managing director of BIS Applied Systems, provides a management guide to the initial planning of a database study, and discusses the major elements of the study itself. He pays particular attention to the need for comprehensive planning at an early stage.

database techniques; determining a strategy for the development of database systems; and selecting database products.

Over the past seven years, experience in several successful studies and the review of results of less successful studies has shown us a common pattern.

In broad terms, a database study is no different from any other study, but our experience has identified techniques that should be used and details that must be considered.

In management terms the first step is to set the overall plan for the study. This step is concerned with setting the constraints and objectives of the study; training; and, planning the study itself.

Unless this first step is carefully considered, the chances of being able to evaluate the usefulness and profitability of database at the end of the project are low.

One reason for this is that this phase is often overlooked, which

often follow when it is omitted. It is not uncommon for a consultancy to be asked: "Can you please review the recommendation I have received from my staff on databases?" Or: "We are having some difficulty with our study, can you assist?"

When this arises, we often find that although the team have tackled the job well, given their prior experience, key issues have been missed.

This is the result of their lack of use of relevant database techniques, and the omission of some of the relevant database study steps.

As already mentioned, the first major obstacle to be overcome is how to proceed when staff have no in-depth experience of database projects.

Some preparation will be required and managers will wish to establish fundamental principles.

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Applications packs and the mini user

By Stewart Shepherd

WHEN the first minicomputers were introduced into the market place, their use within commerce and industry was heralded as revolutionary, their applications being both many and varied.

Despite the enthusiasm with which the hardware was greeted, where was the software coming from? Who was going to write it, support it and maintain it? What languages would be used?

With the advent of a new hardware technology, a new software technology appeared to be needed. The application packages that were produced proved to be limited in their scope and their use of the hardware.

In many commercial organisations the volume of information that was needed to be processed was simply too great for mini peripherals to hold and, therefore, the software was restricted to a subset of that information and was severely limited in its flexibility.

The mini hardware that we have with us today is far removed from those "revolutionary" days. The power of the current minicomputer is prodigious and the disc capabilities and capacities mean that the hardware is capable of taking its place in any field of computing.

What is more, application packages have caught up and are available on mini and small business systems.

Now that hardware has reached a point where it is truly viable for the commercial and industrial sectors to consider it, the established software houses are able to bring their wealth of computing knowledge and depth of computing experience to this market.

Thus, both the smaller organisation, with its single central mini and no data processing department, and the large combine, looking to distributed processing, are able to reap the benefits of mainframe software experience with minicomputers.

There should be no doubt in the minds of application package authors that the demands of the mini user, whether he be the small company or the offshoot of a large organisation using distributed processing, will be as great as, or even greater than, those of the mainframe user.

For these users will have no recourse to internal professional DP departments.

Their machine is switched on in the morning and switched off at night and no-one goes near it during the day; and they will be looking for application packages that run in like manner.

However, it is a fact that user systems do not remain static and will need to be able to be changed by the user department. This means that any changes that may be necessary must be made without referring to program listings and instruction sets.

The user needs to have his "rules for processing" outside of the computer programs and be able to change them at will.

This technique is already practised by many organisations with mainframe computers, which achieve remarkable saving in programmer/analyst time for system maintenance.

The distribution of these modifications requires a high level of resource and experience on the part of the author. It is to this sort of organisation that the application package purchaser must look for the security and support that he needs.

The term "minicomputer" has become synonymous with interactive computing. The instance of a user having a direct window into his system for the purpose of inquiries, means that information is much more easily and rapidly accessible and allows the user to respond immediately.

Data collection can also be achieved at source, avoiding manual duplication of effort and the possibility of transcription errors.

It is essential, with this apparent ease of access to information, that any application package provides security control over access to the information and allows the departmental manager to change password criteria.

While these screens can allow for a wide variety of requests they will need to change with the user's requirements so that a new piece of information can be added to a data input screen or a completely new screen designed for a new area of inquiry. The application package must allow the user to describe his own screen formats without the need for any programming involvement.

The inquiry selection criteria must also be under the user's control as what was required last time will in many cases be different this time.

A facility to browse through the results of a search is also of great importance.

THE growing capabilities of the minicomputer are making it suitable for an ever wider range of industrial and commercial applications. Yet the typical minicomputer does not usually benefit from the same DP department support as a mainframe.

Stewart Shepherd, sales manager for Peterborough Data Processing, argues that this piece of equipment on the application package supplier which are probably greater than in the case of a mainframe. One very significant aspect is the capacity for end-user modification.

Although all computer systems need amendment from time to time, it is in the area of manpower resource processing — payroll and personnel — that requirements change most often and unobscurely.

For the personnel manager to have complete control of his system and to have his own minicomputer means that his concern regarding confidentiality can be satisfied.

The information relating to his company's employees can then remain within the personnel department, but it is being able to control change in his system that gives the greatest benefit to the personnel manager, or indeed the payroll manager.

The payroll manager knows that with each round of wage negotiations he will be required to change his way of calculating each employee's earnings.

For the payroll manager who uses a traditional form of computer payroll, this will mean lengthy discussions with his DP department and the rescheduling of their current workload to accommodate the changes.

But the payroll manager with the type of system described in the previous section can consider himself master of his own destiny.

By use of his interactive terminal and flexible payroll package he can make his own changes and generate any new screens or reports accordingly. For the personnel manager, besides the already stated advantages of greater security, this type of minicomputer application package means that he can produce vital information when he needs it, that is, straight away.

For the minicomputer user, such application packages mean independence and security. The minicomputer application package market is more stable now that the established software houses are developing their own packages in this area.

Finally, for both the user of application software and the supplier, the mini revolution is over and the benefits of a new regime can begin to be enjoyed.

Future for dictionaries

From page 20

lowed by the ability to generate test databases from a data dictionary, though Dr Evans estimates its probability only as "very likely".

He identified other "near certain developments" as the routine use of data dictionaries in logical data analysis (4); their regular use by non-DP persons (5); their use for database input/output control (12); the definition of most corporate terminology in a data dictionary (18); the incorporation of data dictionaries as an integral part of relational databases (20); the use of data dictionaries to direct and control distributed databases (8).

Events seen by either or both groups as "very likely" to occur were: the use of data dictionaries as the unique source of all data definitions (1); a data dictionary capability for word processing, screen formatting etc. (6); the capability to direct and control distributed network systems (7); data dictionaries typically used to supervise the security of DBMS (9); data dictionaries capable of generating some program logic (10); data dictionaries used routinely to collect utilisation statistics (14); and the validation of all input and data by data dictionaries (17).

Four events were given a relatively high number of "never" votes by both groups suggesting greater uncertainty about their occurrence at all. These were: the use of data dictionaries as the unique source of all DP documentation (2); the routine use of data dictionaries to implement program logic (3); a data dictionary capability for provision of data (11); and provision of data dictionaries of a comprehensive suite of data definitions (15).

UN help for Peking informatics centre

THE ambitious project to set up a National Informatics Centre for the Indian government is to be repeated in China.

Earlier this year, the United Nations Development Program, UNDP, voted \$4 million for the establishment of a computer system for the government in Peking (CW, March 22), and although there will be adaptations, it will be essentially similar to India's NIC.

Computers, the software subsidiary of the big Norwegian

shipping registration and engineering group Det Norske Veritas, is under contract to implement the system in New Delhi (CW, July 14, 1978) which is being built around a Control Data Cyber 172 mainframe (CW, April 12).

Project manager for the contract, Helge Klitzing, told Computer Weekly that Control Data, keen to get into the Indian market, has put in a very competitive bid for the \$2.7 million contract when spares and sup-

port were included. "The bid was worth about \$4 million at US government prices," he said.

The idea is to put together an enormous database serving up to 40 ministries and departments, with intelligent terminals attached throughout the user departments. Initial data to be assembled covers energy resources, production and utilisation, water management, national budgeting and accounting, and customs.

Considerable work has already been done on a Hewlett-Packard HP2100 mini, and several of the terminals, built around Computer Automation LSI-2 minis have already been built.

"The budget includes \$300,000 for a Fellowship scheme which involves bringing people from the National Informatics Centre and the Ministries to Europe and the US for training and to gain experience, and we are involved in organising this," said Klitzing.

The mainframe is to be installed in November, and initially it will be completely separate from the HP mini. Subsequently applications will be transferred across and ultimately it is planned that the mini will front-end the Cyber.

Software to be used is CDC's forthcoming database management system EDMS. "EDMS is a network database and is one generation on from the Cobol standard," said Klitzing.

The contract with Computers runs for two years, running out in May 1980. It was won in competition with Stnkonstul of Sweden, Logica and Selcon of the UK and two Canadian companies.

AT&T moves towards entry into intelligent terminals

DESPITE a possible prohibition on its entry into computing, American Telephone and Telegraph appears to be moving forward into the intelligent terminals business. Should it go forward, the venture will benefit a small peripherals manufacturer known as Sykes which makes an accessory for terminals that includes floppy drives and appropriate electronics.

That device enables ordinary terminals to store data and to send and receive information automatically.

Talk in the computer industry and on Wall Street indicates that AT&T will be buying these accessories for its terminals. AT&T's VDU's do not offer the kinds of storage capability and other power that the Sykes unit will add.

Japanese stop VLSI research

THE Japanese government is to stop funding the multi-million dollar Very Large Scale Integration research programme next March when the four year research effort is scheduled to come to an end. This is according to Mr Matsunaga, manager of product development and strategic operations with Nippon Electric.

This has led to speculation on future Japanese VLSI work, as there is a research project being run jointly by Fujitsu, Hitachi, Nippon Electric, and Nippon Telegraph and Telephone. This concentrates on telecommunications and would represent perhaps a greater long term threat to US and European manufacturers.

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10/11/79

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Green light for Plessey signal system

PULSE code modulation equipment is to be used by British Rail to expand the capacity of links between signal boxes in the Colchester, Ipswich and Harwich areas of its Eastern Region.

Worth £700,000, the equipment ordered from Plessey Telecommunications of Beeston, Nottingham, will allow 30 speech channels to be carried on existing pairs of copper cables. This is said to be more cost effective than installing more cables of greater capacity.

Belize, in Central America, has ordered a complete electronic telephone system from Plessey, which will provide 4,000 more lines and more than double the capacity of its public telephone network. The order is worth £23.5 million.

Meanwhile, back in the UK, the Post Office has ordered nearly £1.7 million worth of lamp-and-cord type private manual branch exchanges for 40 exchange lines and 160 extensions and other equipment to be delivered by next March from Plessey.

Private manual branch exchanges have also been ordered by the Mauritius Department of Telecommunications. These range from two exchange lines with four extensions to 10 exchange lines with 100 extensions. The order, also for Plessey, is worth £107,000 and follows a similar order placed two years ago.

Bulgaria's 1100s

THE Univac 1100 line has found favour with the Bulgarian government to the extent that two agencies, the State Planning Commission and the State banking group, have installed dual processor Univac 1100/12s.

Our picture shows one of seven ICL 9601 factory terminals in use at Westland Helicopters' factory in Weston Super Mare. Each terminal is linked to an ICL System Ten which in turn is connected to an IBM 370/115 using 3270 emulation.

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All of which puts us in an excellent position to profit from all the many and varied marketing opportunities which microprocessor technology has opened up.

And for you to profit from them as well.

We're looking for one or two people with systems sales experience to help us open up the micro systems market still further in London and the Home Counties. You won't necessarily need sales experience in micro systems, but you will need to have a broad general knowledge of computer systems and proven ability to identify and develop new market opportunities. You will need to display a creative approach in terms of new applications for our products, and to explain them to user management; and the self-discipline to organise a sizeable list of assignments on your own.

In return, you'll find real reward in material terms, and the equally important satisfaction of seeing your solutions being successfully put to practice. If you're aware of what the micro revolution really has to offer in sales terms, please contact Esther Dye at our Farnborough Headquarters on (0252) 44321. Alternatively you may prefer to write to her at the following address: Software Sciences Limited, Abbey House, 282/292 Farnborough Road, Farnborough, Hants.

Microprocessor Sales

c. £12,000 Plus car

Home Counties

Software Sciences Limited
Abbey House, 282/292 Farnborough Road,
Farnborough, Hants GU14 7NE.

Use your DP experience in recruitment

And earn around £10,000 plus car.

Our client, a professional recruitment consultancy operating internationally with a large, well-established client base, has an exceptional opportunity for someone with determination and commercial flair. You would join them as a consultant engaged in the selection and placement of DP personnel at a variety of levels. You will already have sound DP experience. But then you may have specialised in sales, systems or recruitment.

Handling complete recruitment assignments will be a comprehensive challenge to all of your abilities. You will help to sell the service, liaising with senior management, and follow up with planned proposals for advertising right through to final selection of suitable candidates. Our client is highly growth oriented, and the same planned expansion which dictates the addition of another consultant will also yield many lucrative opportunities in the future.

Meanwhile you will earn basic salary plus commission giving potential earnings in excess of £10,000 a year, with a car and other benefits.

Write in confidence giving full details of your age, qualifications, career history and salary progression to date, stating the names of any organisations to whom your letter may not be sent, to:

T. L. Roberts, Director (Ref. 458)
WHITES RECRUITMENT LIMITED
72 Fleet Street, London EC4Y 1JS

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Offices: Bristol, Glasgow, Leeds, London, Manchester
and Wolverhampton.

Computer Professionals

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- ★ Paid home leave on completion of contract
- ★ Free Company primary schooling with generous education assistance for secondary education for eligible children
- ★ Excellent recreational facilities

The Bahrain Petroleum Company Limited, a large company in the oil industry, offers challenging opportunities in its rapidly developing Computer Services Department.

The Company has installed a 370/3031 with 3 megabyte core supporting batch and on-line systems. The data base is TOTAL with ENVIRON for its teleprocessing support. There is also a linked System 3/12 and a Fox 2/30 process control computer.

A wide variety of technical and commercial applications are already in use. Additionally, major areas of development are proceeding making use of real time, remote communication, and data base management techniques. Also a major study into the use of WANG word processors throughout the Company is currently taking place. To support the planned growth, the following personnel are required:

Programmer - c £8,200 p.a.

Candidates should have a minimum of 2-3 years' COBOL experience in a 370 environment and a detailed knowledge of TOTAL and ENVIRON would be advantageous. The incumbent will be required to work from detailed specifications and must be able to produce good quality structured programmes within agreed timescales.

Technical Systems Analyst - c £10,930 p.a.

The successful applicant will be a member of a small team which is responsible for the design, maintenance and user support of all technical and planning systems throughout the Company. Existing and planned projects include: critical path planning, replacement policy, reliability information, process control computer support, geological mapping and data analysis, financial modelling.

Members of the team are directly responsible for their projects, and are expected to promote the use of computer systems throughout the Company. The prime requirement for this position is a successful record in all stages of development and implementation of technical computer systems or Operational Research studies. Candidates should have a degree, HND or equivalent, in a numerical discipline. A knowledge of Operational Research techniques and statistical methods would be a distinct advantage.

Operating Software Specialist - c £11,600 p.a.

Applicants must have significant experience in System 370; thorough knowledge of Assembler and OS/VS1 Internals and a sound knowledge of data communications. They must also have programming experience in COBOL and FORTRAN. The work involves generation and up-keep of the operating systems, maintaining system libraries, providing programming assistance to the Systems and Programming staff, and involvement in the development of data bases.

It is essential that candidates are self motivated and prepared to work with minimum supervision. Candidates should have a degree, HND or equivalent.

Employees live in Aali, the Company township in Bahrain. The town covers an area of nearly a square mile and provides homes, community services and recreational facilities for employees and their families.

Contracts are for one year renewable by mutual agreement. Full medical attention for employees and married or bachelor furnished accommodation provided.

Please send full personal details to:-

Personnel Selection Department,
Caltex (U.K.) Limited,
30 Old Burlington Street,
London, W1X 2AR.
Quoting reference CP/CW



Internal Consultants

Computer Systems Audit/Security
London based, to £10,500 + car

These vacancies arise through promotions within a function recognised as providing excellent and varied prospects of career advancement. Our client is a multinational manufacturer and distributor of business equipment and supplies. Successful candidates will be members of an internal consultancy team providing international management at all levels with a professional appraisal of operations methods.

and an assurance of the integrity of current systems. Candidates, probably 27-35, must be graduates with at least 3 years in EDP systems management, ideally with IBM equipment. A full understanding of business problems associated with large scale systems development is vital. For one of the vacancies experience of security technology is preferred. There is about 30% travel, mainly overseas.

N.P.S. Lilley, Ref: 22134/CW.

Male or female candidates should telephone in confidence for a Personal History Form to:
LONDON: 01-734 6852, Sutherland House, 5/6 Argyle Street, W1E 6EZ.



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The Universities Statistical Record

DEPUTY SECRETARY

Applications are invited for this new senior post in the office of the Universities Central Council on Admissions at Cheltenham.

The person appointed will report to the Secretary who is responsible for both the admissions work and the statistical record, with appropriate delegation to a Deputy Secretary on each side.

Duties will include the management of the existing computerised records comprising staff and students in all U.K. universities and the development of new record systems; both involve close consultation with the universities, the University Grants Committee and other users.

It is expected that the person appointed will have had:
a) professional data-processing experience, with some appreciation of the use of statistical data-collection methods; and
b) substantial administrative experience, preferably within a university environment.

The appointment will be on Grade IV of the universities administrative salary scale (minimum currently £10,293 p.a.) with superannuation.

Preliminary enquiries marked PRIVATE AND CONFIDENTIAL should be sent to:

The Secretary, UCCA
P.O. Box 28, Cheltenham, Glos. GL50 1HY

from whom further particulars and an application form may be obtained.
Closing date for applications: July 18, 1979.

£10k+Appointments £10k+Appointments £10k+Appointments

Recruitment



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U.K. and Europe

Salaries: to £17K (Europe) to £10K (U.K.)

An internationally renowned supplier of Data-Base and Teleprocessing Management Systems has retained Logistix to identify top calibre DB/DC Programmer/Analysts, Designers & Systems Analysts, Consultants and Project Leaders, for its Belgian Head Office and U.K. Regional operations.

THE COMPANY: Our client is an established world-wide software organization with its Corporate Headquarters located in U.S.A. and its European Headquarters situated in Bruxelles, Belgium. With 2500 clients and over 8000 installed products it is recognized as one of the leading independent software companies in the world.

THE CHALLENGE: The company plans to continue its rapid growth rate and success story by diversifying into the areas of technical information processing consulting. This started one year ago and within the next two years they will need 100 additional professionals in Europe and U.K. alone. The challenge is available for those seeking an established industry leader, with financial stability and opportunities for rapid advancement because of a fast growth rate. Their philosophy is that "growth needs people and people need growth."

THE PROJECTS: Some of the Company's recent projects have included:

- * Data-Base Production Control Systems.
- * Turn-key applications and systems software development.
- * Conversion to other DB/DC software.
- * Implementation of warehousing distribution systems.
- * Development of DB/DC Systems and Programming Standards.

The Company's involvement in projects ranges from planning or management through to the development of complete turn-key solutions. They are a very broad-based Consultancy operating in the entire market, solving problems by applying mainframe or mini-computer solutions.

THE PEOPLE: These very important positions will appeal to those:
Who are underutilized in their current jobs.
Who are worth more than they are currently earning.
With an adventurous desire to travel and who want to be involved with a diversified menu of projects.

People with appropriate linguistic skills will be given opportunities to travel and even relocate to Europe. Those who have the desire to improve their knowledge of French, Dutch and German will be able to be based in the U.K., but have opportunities to work on projects on the Continent. Those wishing to remain in the U.K. will have an opportunity to live and work in one of the most picturesque areas of the Thames Valley. Even then, there will be ample opportunity for travel within the U.K. and overseas should it be desired. Suitable applicants should therefore offer in-depth IMS, DLI, TOTAL, ENVIRON, CICS exposure or similar DB/DC experience.

OPPORTUNITY PROFILES:

Programmer/Analysts with a minimum of 36 months applications programming experience with COBOL, PL/I or BAL in a mini-computer or mainframe environment working on commercial, financial or manufacturing projects. Analysts/Designers who have been involved in a feasibility study, the design and subsequent implementation of at least one complete system preferably in the areas of sales ordering, stock/inventory control, budgeting/forecasting, foreign exchange/investment and portfolio management. Consultants and Project Leaders who must demonstrate expertise in the areas of Project Planning, System Analysis and Design, "Top-Down" Development and Structured Programming techniques. Consultants who have the ability to act in a project-leader or project manager capacity will have a definite advantage.

THE BENEFITS: The higher than average salaries reflect the prominence which our client places in the acquisition of these key personnel. Additionally, extensive benefits include life and disability insurance, pension and medical plans, overseas allowances and liberal mileage allowances.

YOUR NEXT STEP: If you qualify please telephone or write immediately to arrange an initial interview in our London office. Successful candidates will be short listed to meet two of the Company's senior management who will visit our offices in July. Offers of employment will be made no later than 14 days after interview. It is hoped that for both U.K. and European positions appointments will be taken up in August/September.

Logistix, Freepost 32, London W1E 3YZ

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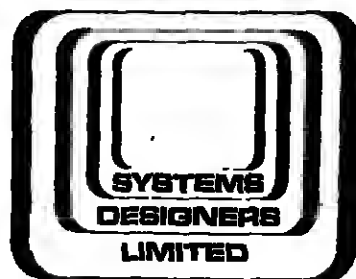
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£10k+Appointments £10k+Appointments £10k+Appointments



Quality first

Informal Interviews at our Head Office Pembroke Broadway Camberley

On Tuesday 19th June, 17.30-21.00 hours.

Systems Designers Limited needs computer professionals at all levels to work in very nearly every field of computer operation, not only in the UK but also in Europe, the Middle East and the USA. Although a large amount of work is centred around our Camberley, Farnley and Manchester Offices there are many long term projects which offer opportunities to see other countries throughout the world. Our continuing requirement is for staff at all levels. We are looking for final year graduates as well as experienced software and systems professionals. Salaries are negotiable up to £12,000 p.a. according to ability and experience. If you can meet the challenge of intellectually stimulating and varied work with a leading well-established software and systems consultancy specialising in mini and micro computer real-time applications, then please drop in for a drink and a chat with our managers and consultants. The office is adjacent to Camberley BR station. If you cannot make it, telephone Ann Gregory for an application form and further information about the company or write to: Bill Hockey, Operations Director, Systems Designers Limited, 1 Pembroke Broadway, Camberley, Surrey GU15 3XH. Telephone Camberley (0276) 82244.



Systems Designers Limited has an unrivalled reputation in modern computer technology as applied to mini and micro computers in real time environments. This reputation is resulting in a company wide expansion plan, which offers plenty of opportunity to the right people. We are British, independent, currently 200 strong and confident of a successful, exciting future.

Our principal work areas are currently:

COMMUNICATIONS
Military communications procedures, voice, data and message network design, network management systems, message switching, telex and packet switching systems, computer communications protocols.

INDUSTRIAL
Process control and monitoring, plant control simulation, high speed data analysis and distributed microprocessor systems.

MILITARY
Modelling, avionics and radar systems, complex rigs, simulators, microprocessor missile systems and signal processing.

SOFTWARE PRODUCTS
Compiler technology, software design techniques, MASCOT and information processing systems, STATIS and VITWATA systems.

VIEWDATA
International Viewdata Centre. Developments to support External Computers. New viewdata products for USA and Europe.

CONSULTANCY
Project Management, software and system development technology, complex military systems and theoretical studies.

£20,000 + p.a. Systems Analysts & Programmers VIENNA

Our client has recently won a £200-million contract to provide a radar and flight data processing system to cover the Austrian flight information region. The project is based on DEC computers using distributed real-time processing, communications and sophisticated peripherals. Several opportunities exist to join the team in Vienna in this absorbing and creative work. Contracts are for a minimum of 2 years and around 4-7 years real-time software experience is desirable. The package consists of a highly competitive salary together with attractive relocation conditions and such benefits as free education for children and free medical insurance.

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Please write, giving a brief career history to David Macmillan, Personnel Advertising Limited, 22 Red Lion Street, London WC1R 4PX. All replies will be sent forward to our client unless we are instructed otherwise. Please quote ref. GRS 538.

FREELANCE PL1/CICS HOLLAND £400 per week

We are currently engaged in the development of a real time order entry system for a client in the Netherlands and require an experienced PL1/CICS programmer to join an existing team for an initial period of six months.

For further details please contact Brian Bidston during office hours (0734 791225) or evenings (03446 5385).

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Move into new pastures with Granada Group Services Limited, near Bedford.

Our association with data processing covers approximately 14 years during which time considerable expansion within our Group of Companies has necessitated constant hardware and software enhancements.

The present configuration includes an IBM 370/158 3 m.b. processor and continued development in the areas of on-line and data base systems is planned for the 1980's when IBM 8100's, 4341, 4331 are planned for delivery.

As the computing facility for the entire Granada Group, comprising Television, TV Rental, Theatres, Motorway Services, Publishing, Properties, we have need to expand our department by 20% and are seeking applications from commercially biased individuals.

SENIOR ANALYSTS & SYSTEMS ANALYSTS Starting salaries £6,500 - £8,250

Commercial systems experience is the prime requirement and since we cover a wide range of diverse applications, your experience could be of use in a number of areas.

Additionally, our vacancy exists in Manchester for an Analyst with on-line systems experience.

LEAD PROGRAMMERS & SENIOR PROGRAMMERS Starting salaries £6,500 - £8,250

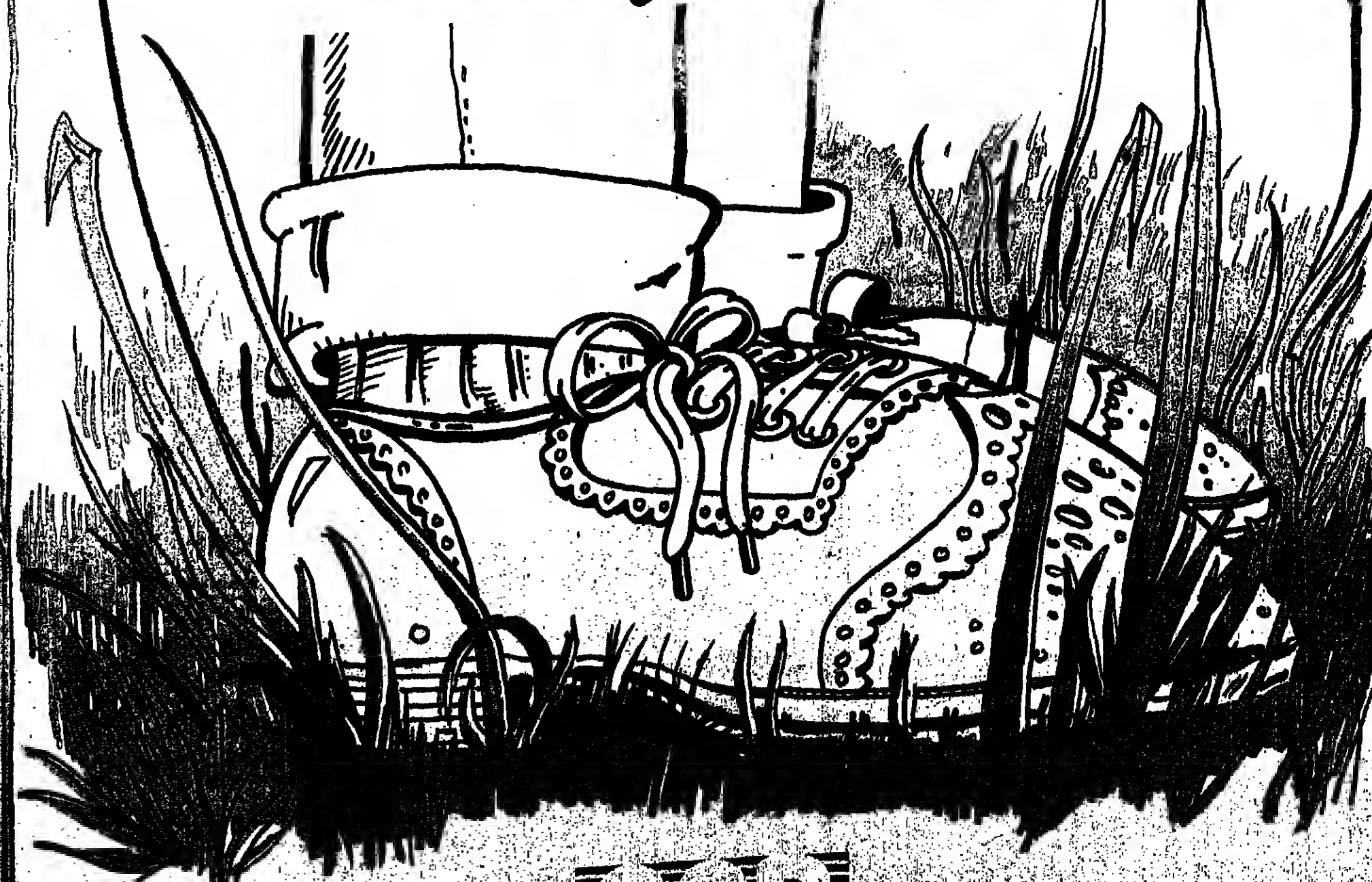
You should be a fluent COBOL and/or PL/I Programmer. We are less concerned with the length of time you have been programming, more your degree of involvement and future potential and for those qualified individuals not wishing to have supervisory responsibility, we are prepared to reward you for your technical abilities alone.

Benefits include a salary directly related to your experience, continued training, comprehensive relocation package, flexitime, four weeks holiday, free life assurance, contributory pension scheme.

Please contact our Advising Consultant for further details: Andy Carter 021-236-3781 (24 hour answering service) or Lapworth (05643) 3272 (evenings and weekends).

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Don't let the grass grow under your feet!



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A4MB IBM 3032 (one of the first fully operational in this country) running in parallel with a 2MB IBM 3031; a rare diversity of on-line and batch applications including OSVS1, VM/CMS, CICS/VTAM, NCP, APL and IIS; optical scanning, COM and digital plotting equipment; over 70 major DP development projects currently in hand — that's advanced technology by anybody's standards. And that's only the beginning.

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All these positions are the result of re-organisation and expansion, and their holders will have every opportunity to make a personal contribution to our continuous development programme. We promote from within wherever possible, and the main criterion for success is ability.

Salaries range from £5000 to £8400 plus a current self-financing productivity payment. Your income will be supported by a full range of benefits which include generous holidays (present arrangements honoured), pension/insurance scheme and an active sports and social club.

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Ring John Holmes on
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You will be responsible for the development of powerful and well designed systems for management control.

ADP Network Services is an international company providing interactive computing services for managers and businessmen.

We believe in accessible management and promotion from within. We are always prepared to recognise and reward self-motivated individuals.

We provide a professional development approach for our customers and expect our staff to demonstrate their abilities and experience.

The kind of people we need will have experience of:

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You must be able to conduct the installation of a customer's system from the pre-sales stage through to the commencement of live running and be able to lead other members of project teams.

Education to 'A' level standard is generally expected together with the capacity for hard work and applications in rough situations coupled with a sensitivity to the requirements of others.

Ring: Bernard Edwards or Peter Pearce 01-837 1355 or write: Bernard Edwards, S & P Manager, ADP Network Services Limited, 2nd Floor, Peter House, St. Peter's Square, Oxford Street, Manchester M1 5AQ.

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Sales Executive O.E.M. £11,000+ with Car

This senior appointment is based in our Manchester office and calls for someone with a proactive, innovative attitude to selling. You will have at least two years' selling experience in the computer industry preferably, but not essentially, to O.E.M. customers.

Sales Executive-End User £9,500+ with Car

These posts are based in our Manchester and Harpenden offices and offer attractive career opportunities for men or women with two or three years' successful sales experience in the computer/electronics field. You will be responsible for selling our range of graphic products and peripheral equipment to a variety of users, both established and new customers in all areas of England.

CAD/CAM Sales Support Specialist c.£7,200 with Car

If you are a qualified professional with outstanding technical, administrative and commercial ability you will find this a challenging and diversified career opportunity in the fast expanding field of computer aided design and manufacture. You must have at least two years' experience in one or more of the following:

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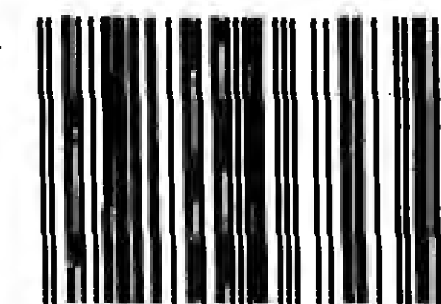
Based in Harpenden, you will assist our O.E.M. Sales Executives and their customers in the application of our graphic terminals and associated computer products. You will handle technical queries either by telephone, correspondence or on-site consultations and additionally assist at exhibitions, seminars and on training courses. You need to be a communicative, skilled Electronics Engineer with several years' digital and analogue experience and a degree level qualification.

In return for your skills, additional to the above salaries, we offer many other big company benefits including generous holidays and sick pay scheme, free life assurance, non-contributory pension scheme, ample product training, relocation expenses where appropriate, and as an expanding company, a good career path.

Interested? Then phone Jim Rockall today on Harpenden (05827) 63141 for an application form, or write to him at Tektronix UK Ltd, Freeport, Harpenden, Herts AL5 4BR.

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spells out a great
future for you with
the new leaders



Senior Analysts and Analysts

Ideally with retail experience

Senior Programmers and Programmers

With at least two years' IBM experience with COBOL or Assembler

The new retail computer technology is moving fast at Tesco where Electronic Point of Sale (EPOS) has been under extensive trial at our Wellingborough store for about a year.

Due to its success, we are now expanding the project. Our initial aim is to develop a system to link mini-computers in stores to our Head Office mainframe: the IBM 3032, complemented by the IBM 3680 Retail System and IBM 3680 Supermarket System.

To cope with the new demands of the project, we're increasing the team with a small number of men and women who feel they can work as well with retail problems as with pure DP ones. Thus you will be contributing substantially to the growth of a new technology that will undoubtedly revolutionise British retailing.

The environment is sophisticated and highly professional, the prospects excellent, the rewards very attractive. Salaries are above average and benefits include expenses for relocation to the Cheshunt area, where appropriate.

For more information about the new opportunities in EPOS with Tesco, please contact Fred Rayers, Tesco Stores Limited, Tesco House, Delamare Road, Cheshunt, Herts; EN8 9SL. Telephone: Waltham Cross 32222.

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We have been requested to assist our clients in South East London in the filling of the above position. The Company are a major firm in the construction industry with offices throughout the UK, Europe and the rest of the world.

The current installation consists of an ICL 2904 with RJE links to a large ICL mainframe with fourteen staff including operations, data control and data preparation.

Candidates should have at least five years' experience working with ICL hardware, preferably including 2904.

Knowledge of ICL 7020 and 7502 terminal operation and/or RJE facilities to ICL 1900 or 2900 together with George III would be an advantage.

Applicants should also be familiar with the control of the operations area including security, libraries, scheduling and the maintenance of standards.

The successful candidate can look forward to involvement in the development of new systems, liaison with user departments, dealing with technical staff and participation in the planning of future hardware enhancements.

An above average salary will be paid.

Conditions of employment are excellent and all that one would expect from a large international company and include BUPA, pension scheme, season ticket loan and subsidised restaurant.

Quote reference number L3265 for further details and an application form.

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- Mini/Micro Computers
- Disk Drives
- Printers
- Communications

Based at High Wycombe or one of our Regional Offices you will have the opportunity to travel throughout the U.K. Benefits include free life insurance, BUPA, membership etc. Please send your cv, to, or request an application form from, R. Burgess quoting reference RB/CW/2331.

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One of the world's leading micro computer manufacturers currently enjoying an annual growth rate of 40% is about to launch its own service group. This new venture could be your opportunity to join a dynamic company, gain experience in wide range of industries and applications with prestige products. Start at £8,500, plus £2,600 towards the cost of your choice plus many other benefits. If you are a service/customer engineer with good academic background/computer experience, live in London or Home Counties, then take a big stride to an exciting new career with excellent future prospects by calling today — but hurry!

Consultant's Ref: EK2137

AB EXECUTIVE (KINGSTON) LTD.

01-546 6142

University of Bradford

COMPUTER OFFICER

(Ref. 86/COT/CW)

A three-year appointment for a graduate programmer to work on an input/output World Model and related tests, including supervision of junior staff under the direction of the Professor of Economics. Salary within the range £4,232 to £7,145 plus superannuation, etc. Please write giving details of qualifications and experience to the Personnel Officer, University of Bradford, Richmond Road, Bradford BD7 1DP. Please quote reference, informal enquiries may be made direct to Professor J. A. Bottomley, telephone Bradford 33466 ext. 8/27.

ADDS (UK) LTD

A subsidiary of Applied Digital Data Systems Inc.

Sales Support Technical Supervisor

and

System Support Supervisor

A London Based opportunity to work in Europe

Applied Digital Data Systems (ADDS) is one of the world's leading manufacturers and suppliers of micro-processor based display terminals. A key element in the expansion of its already considerable European market is the creation of two new senior positions. The successful applicants will be directly involved in sales/technical or sales/system situations throughout Europe, dealing through an already established network of main distributors.

Qualifications

Sales Support Technical Supervisor — Europe

At least 2-3 years technical experience of micro-processor based terminal products or peripherals with the capability of understanding and advising both on software and hardware related program requirements. Previous involvement in pre-sales support situations would be a distinct advantage, preferably in the O.E.M. market.

System Support Supervisor — Europe

It is anticipated that the successful candidate will have good experience of applications software related to small business systems and preferably have relevant experience of floppy and/or fixed disk systems, Basic, Assembler and operating software. Knowledge of data communications would be desirable.

These are outstanding opportunities to secure key European positions in a company with an impressive growth rate.

They will involve frequent travel and will give extensive experience of the working of a European operation.

It is envisaged that total remuneration will be up to

£8,500 p.a. + 2 litre Car

Please contact Bernard Conn or Caroline Connabear quoting reference ADD083.



SMR Sales & Marketing Recruiters Ltd.
Victory House, 99 Regent Street,
London W1R 7HB,
Telephone: 01 734 9776.

MIDLAND RECRUITMENT FEATURE

Advertisers are reminded that the next Computer Weekly area feature will be published on June 21 and will highlight career opportunities in the Midlands.

Spec reservations should be made as soon as possible to:

Basil McGowan — Birmingham — 021-358 4838

Eddie Farrell — London — 01-261 8097

Copy Deadline: PM Friday before

COMPUTER WEEKLY

THE INDUSTRY'S WIDEST READ AND MOST REQUESTED NEWSPAPER

datascene international

IBM OPERATIONS — DAYS

Kant/London Borders to £5000

A large International organisation based in an easily accessible part of N.W. Kent is seeking to recruit experienced IBM personnel for their expanding Technical Support Department. A minimum of 12 months Operating or Data Control experience is required, preferably with some IBM OS JCL knowledge.

The installation utilises a Data 100 network linked to the company's main IBM 370/158 running under OS/VS1. The technical Support Department Operates a flexitime System and therefore this is an ideal opportunity for Operators to move from shift work into an interesting and demanding DAYS ONLY position.

There is a recognised company career path which includes the possibility of moving into programming in the future. Excellent staff benefits include discount on a wide range of products, staff restaurant, and an active sports and social club, one of the amenities being a swimming pool on site.

01.439 7871

Reference MH 24/1

OTHER OPS

DATA 100 £7000

International Company based in Basingstoke require a Senior Op. Data 100 Exp preferred, OS JCL knowledge essential.

H.P. 3000 £4500

Experienced Operator, on any machine, required to take control of Computer room for Oxford installation. Chance to learn Programming.

CMC REALITY £NEG

Any Mini or Mainframe experience for C. London Site. The right Applicant will be trained in Systems Programming and be expected to take control of the Computer Operation, when able.

BURROUGHS B6700 £5600

2-3 years Burroughs experience for this Senior Operations position, Junior Ops also required with 1 yr + Exp.

HONEYWELL 66 GCOS £4600

Large installation requires Operators with 1 yr + exp. preferably Honeywell, but will look at other mainframes.

NCR B4 £5500

Various levels of Operators required by busy site shortly installing a powerful criterion.

NCR B1 to £4500

6 mths + NCR experience preferred for this day shift only site, salary according to exp and experience.

UNIVAC £4000

South London installation requires an Operator with 9 mths + experience, particularly on Univac Hardware.

DATA CONTROLLERS

We have both Senior and Junior Data Control vacancies throughout London and the Home Counties. Below are just a few of our current requirements.

ICL GII/GII+ £6000

Supervisor with lots of GII/GII+ experience. 2 shifts S.W. London.

IBM OS £4400

9 months Op or data control exp. for City based company. Shifts.

ICL GII/GII+ £5200

2 yrs. GII experience for this 2 shift site in S.W. London.

UNIVAC £4000

Centrally based company requires lots of Univac knowledge.

IBM OS £4300

OS experience needed for 3 shift vacancy in North London. Opportunity to expand your JCL knowledge.

BURROUGHS £3600

Any D.P. background. OAYS ONLY. Surrey/London border.

ICL 2900 £3300

GII exp. pref. but not essential. West London. Flexi-time.

ICL OPERATIONS

Essex/London Borders £4800-£5500

Chloride Automotive Batteries, a major British manufacturing company require an experienced SHIFT LEADER and OPERATOR to work at their Dagenham based installation.

The hardware currently consists of a 1902S running under GII, however, a 2950 is due to replace this machine towards the end of the year.

Applications for the Shift Leader post are invited from candidates age 24 or over with 2 years + GII Operating experience including knowledge of Macro writing, who should be either a senior Operator or shift leader at present.

For the Operator position applicants should have 12 mths + 1900 experience preferably using GII. Working a 2 shift system this is an ideal opportunity to join a professional operations team and to gain knowledge of the new ICL range.

Company benefits include Pension Scheme and Social Club, subsidised restaurant, paid overtime and company products discount.

01.439 7871

Reference MH 24/6

IBM + ICL OPS

IBM 370 DOS VS £5400

Shift Leader required by N. London installation. Excellent perks include mortgage subsidy.

IBM 360 DOS VS £4500

Minimum of 12 mths DOS Exp for 2 shift working C. London installation.

IBM 370 DOS VS £4500

6 mths + experience required by a variety of installations in C. London and the home counties.

IBM 370 OS VS1 £4600

City Bank requires an Operator with 6 mths + Experience. Excellent Perks and fast promotion for the right applicant.

IBM SYS 3 £4600

Operator required by N. London installation. Experience of SYS3/15 preferred.

ICL 2900 £5000

Shift Leader required by small 2 shift working installation. 2 years + 1900 or 2900 experience necessary. Perks include Annual Bonus.

ICL 2980 £4000

1 years experience preferably on ICL equipment for this large City based installation.

ICL 2960 £4500

City based installation with newly installed 2960 requires an Operator with 1 year + 1900 or 2900 experience.

ICL 2900/1900 £4800

Large C. London site requires Operators with 12 mths + experience on any ICL equipment.

CONTRACTS

PROGRAMMERS & ANALYSTS

REGISTER NOW FOR IMMEDIATE & FORTHCOMING REQUIREMENTS THROUGHOUT

LONDON * U.K. * EUROPE

DOE TO OUR CONTINUALLY CHANGING REQUIREMENTS WE ARE ALWAYS INTERESTED IN HEARING FROM COMPUTER PROFESSIONALS WITH A SOLID O.P. BACKGROUND TO WORK WITH MAJOR CLIENTS WHO ARE ALWAYS ABLE TO OFFER A WIDE VARIETY OF INTERESTING & CHALLENGING REQUIREMENTS.

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ICL COBOL PROGRAMMERS

CITY to £7000

We have been retained by several companies operating a range of ICL installations covering oil commercial applications who need programming staff at varying levels to continue their expansion programmes.

The benefits offered vary, but many include the valuable SUBSIDISED MORTGAGE.

So if you have a minimum of 12 MONTHS COBOL experience and are looking for a change, why not give us a call today.

Reference BP 24/2

RPG2 PROGRAMMERS

CITY to £6500

A large computer service bureau with an expanding System 3 installation is seeking several programmers who would like to work on a wide range of different applications to expand on their current experience.

The minimum requirement is just twelve months RPG 2 gained on any hardware.

The company offers all the usual fringe benefits, a very good starting salary plus the variety of work.

01-439 7871

Reference BP 24/3

MICRO CONSULTANT

Central London to £9000 + car

A small but expanding Software House is currently seeking a Consultant to enhance their Mini/Micro division.

The ideal candidate will have a good knowledge of Micro Systems; aligned with good communication skills. An in-depth knowledge of Micro assembler is also required.

The company offers an excellent salary package coupled with a very good career path.

Reference HK 24/4

SYSTEM ENGINEERS

North London to £7500 + car

A Multinational Hardware manufacturer is currently seeking System Engineers to enhance its software support group.

The ideal candidate would either currently be a Software Engineer or a programmer with good Mini or Micro experience who would like to get into System Engineering.

An excellent salary is provided with the additional benefit of a company car. So if you are looking for a position with a great future plus a great deal of interest, contact us today.

01-439 7871

Reference HK 24/5

IBM COBOL PROGRAMMERS

Middlesex £6000 + 5% Mortgage

A large insurance group operating an IBM 370 installation is seeking several programmers with a minimum of 18 MONTHS COBOL who are looking for a more dynamic environment where they can utilise and expand on their experience.

The Company offers an extremely good starting salary, £7 a day L.V., non contributory pension, car park, sports and social club, plus of course the 5% MORTGAGE!!

Reference BP 24/7

SYSTEMS ANALYST

City to £7500

A large shipping and insurance group is seeking a Systems Analyst to join their small and friendly team, which operates an expanding ICL installation; with a new machine arriving shortly.

The person they are seeking should have approximately three years analysts experience and possibly a programming background, although this is not essential.

The company offers excellent starting salaries together with extremely good fringe benefits including L.V., season ticket loans, BUPA etc.

01-439 7871

Reference BP 24/8

Datascene International Ltd. Telex: 25851

Sceptre House

169-173 Regent Street

London W1R 7FB

01-439 1856



Computing
Society

MYRIAD TRAINEE BUSINESS ANALYSTS

WEST LONDON AND CITY

c £5000

A rapidly expanding international organisation offering advanced software products is seeking additional staff at junior levels to join the Company and be trained as Business Analysts. The successful applicants will function in both a programming and design capacity and will have the opportunity of gaining experience with powerful database and financial software techniques.

Applicants will be educated to GCE 'A' level standard and have commercial data processing experience, ideally gained in a programming role. Personality and the ambition to succeed, rather than technical ability, is of prime importance to our client.

The Company offers an excellent starting salary plus bonus (c. 10%) and the opportunity of career progression within this rapidly expanding services organisation.

Ref: S1/1406

MYRIAD APPOINTMENTS LIMITED

30 Fleet Street London EC4Y 1AA

01-353 0981 (24 HOURS)

intel ONE PERSON EDP DEPARTMENT

Intel Corporation (U.K.) is one node of an international communications and processing network. Our operations have now expanded to a point where we require a DP specialist to take full responsibility for controlling the U.K. node, our first dedicated employee in the U.K. This activity will grow.

The candidate should have experience in the operation of RJE terminals, preferably DATA-100, and of communications with IBM processors. He/she will be personally responsible for the operation of the terminals, for the supervision of new equipment installation, for liaison with the European network centre in Brussels and will be expected to be willing to become familiar with the data entry and communications software running on the U.K. node. Intel's continued expansion will ensure a steady growth in the responsibilities and career possibilities of this position.

A good salary and matching conditions will be provided. Reply in the first instance to:

Mrs. Ann McGuire, Intel Corporation (UK) Limited, Broadfield House, 4 Between Towns Road, Cowley, Oxford OX4 3NB.

Scientific Analyst/Programmer

London up to £6214

We are seeking an experienced Analyst/Programmer for our Communications and Instrumentation Department. The requirements are:

- ★ 2 years' experience of scientific or engineering computing
- ★ knowledge of a high level language, preferably FORTRAN
- ★ a degree or equivalent qualification

The computer system:

- ★ UNIVAC 1106, operating under OS1100
- ★ Interactive and batch terminal facilities.

Salary range £5335-£6214.

If this post interests you please ring David Pyatt on 01-831 6272 ext 4192 or write giving full details of age, experience, qualifications and current salary, quoting reference PS/616701(705)/CW, to the Senior Personnel Officer (Hickley), British Gas, 59 Brynston Street, London W1A 2AZ.

BRITISH GAS

BUREAU PROJECT CONTROLLER

circa £ 8500
+ fringe benefits
CITY

We are a well respected group of companies in the City of London. We require a Senior Data Controller, experienced in computer operations, preferably a server bureau environment, to join our expanding bureau division.

A person is needed who can carry a significant amount of responsibility for the smooth running of the day-to-day operations of the bureau and use his analytical experience to do a substantial amount of development work. This is usually new business, of which there is an increasing amount, in which the complexities of a signed contract have to be transformed into the specific functioning of each set of jobs in the bureau including programming and analytical specifications.

INSTALLATION SUPERVISORS

circa £ 7500
+ fringe benefits

The rapid expansion of the division is also producing the following vacancies:

Two INSTALLATION SUPERVISORS are required to be responsible for individual clients' requirements of a variety of interactive accounting packages. The packages can be altered very simply to suit each client and then have to be installed into the customer's accounting routines to cause minimum upheaval. It will often be possible to act in a consultative capacity during these installations, so customer liaison must be close, and travel in the London area will be part of this interesting and varied work.

These posts offer an excellent starting salary in amicable surroundings with fully supervisory prospects, because you'll be getting in on the ground floor; as the company prospers, so will you.

If either of these posts is of interest to you, please telephone Winston Michael, Peter Radburn or Dudley van Tilt on 248 5218.

COMPUTEREXPRESS

(SERVICES) LTD.

68 CARTER LANE,
LONDON EC4V 5EO
TELEPHONE NO. 01-248 5218

Senior Programmers

Technical Support in Telecommunications and CAD

STC are heavily committed to the advanced use of computer systems in telephony and data transmission in the products themselves. In manufacturing processes including computer aided design, in their own management information systems and in inter-company communications.

Very few organisations can provide programming professionals with such a wide range of hardware, software, applications and firm development plans. It's an opportunity you may not want to miss.

Software Support Programmer

The company management information systems cover the U.K. and Europe with a Honeywell Dual 88/40 and current and planned additions of Honeywell Laval 6, PDP, Data General and CMC Minis.

We need a minimum of 2 years' Honeywell mainframe experience preferably GMAP programming and some experience of software system evaluation is desirable.

You will form part of the Software Support Team supporting the 88/40 under GCOS providing a large time-sharing and TDS network.

Engineering Support Programmer

STC utilise CAD on a wide range of electronic, electrical and mechanical projects.

You should be either an Electronic Engineer with experience of computer systems, or a Programmer with a background in scientific packages for engineering users. One to two years' experience is the expected minimum.

You will work in a small team of Engineers and Programmers providing support to users of large CAD packages and producing CAD/telephony systems for use under timesharing.

On-line System Support Programmer

You must have 2 years' experience in programming in Algol - preferably on Data General RIOS systems - or RIOS experience in scientific programming.

The first task is to take part in a CAD related project on Data General equipment with a Technical Support Team, serving Engineering users and utilising several mini-computer systems on-line to the large Honeywell mainframe.

Subsequently you will retrain to support at least one other of these systems/applications. Areas - PDP11, RSX11M, L6, GCOS/TPS, Series 88GCOS/TDS, Data Communications, S/W Development Engineering/CAD Support.

Working Conditions

These are senior programming positions, salaries will be negotiable, and will be adjusted on the basis of age, experience and expected contribution. The company has a wide range of benefits, including a pensions scheme, life medical, dental and optical services, relocation assistance etc. Location is on the edge of London/Herts, with excellent road and rail communications.

Please telephone for an application form or write with full details to Mr. R. Edmonds-Brown, Recruitment Department, Standard Telephones and Cables Limited, Oakleigh Road South, New Southgate, London N11 1HB. Tel: 01-368 1234 Ext. 2579.

STC Changing the face
of communications worldwide

LORIAN NORTHWEST

QARWEN c £6500 + CAR
PROJECT LEADER
Our client is seeking a Senior Analyst, to Project Lead with large commercial systems experience, to take control of systems development. Mainframe and advanced mini-bus systems.

OLDHAM to £4700
COBOL PROGRAMMERS
Young COBOL programmers with a minimum of 2 years' experience in a commercial environment, to work on large TP and Datacom systems.

MANCHESTER to £7000
PROJECT LEADER
An ambitious Senior Analyst is required by our client with IBM hardware. Must have experience in the design and development of systems.

LIVERPOOL to £6500
SYSTEMS PROGRAMMER
A large multi-divisional organisation is seeking a Systems Programmer in systems development, to work on large TP and Datacom systems.

ST. HELENS to £6300
IBM SENIOR ANALYST/PROGRAMMERS
Senior Analyst/Programmer with a minimum of 5 years' experience in a commercial environment, to work on large TP and Datacom systems.

PRESTON c £6000
BUSINESS ANALYSTS
Subsidiary company of major UK organisation requires young Analysts with both systems and business experience. 18 months experience preferred. Well educated, less senior staff are acceptable.

LIVERPOOL c £6000
TECHNICAL PROGRAMMER
Our client is seeking an ICL New Design, or ICL 1900 technical systems programmer to provide Software Support services in the company. Excellent opportunity to join a growing organisation.

BURY £4500 + Bonus
COBOL PROGRAMMERS
Manufacturing company with large IBM hardware seeking additional programmers. Positions are open for staff willing to make their first career change.

"If you're considering a move then you should contact Lorian first".

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Telephone 0532 444185

Recruitment
Consultants
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Fareham Borough Council Borough Treasurer's Department Computer Programmer

Post T.48

Salary grade AP.3/4 - £3,732-£4,632

The recruitment is a Honeywell Laval 64/20 285K (Mk2) and tape, running under GCOS with ICL facility and using TDS and IDS. Work includes development of new applications of both on-line and batch systems. Applicants must have at least two years' relevant experience and be competent in the use of COBOL. The commanding salary will be determined having regard to experience.

100% removal expenses. Up to £500 payable towards legal and estate agents fees plus generous disturbances and separation allowances. Flexible working hours. Temporary housing accommodation may also be available.

For application forms and further details write to the Personnel and Management Services Officer, Box No. 18, Fareham Borough Council, Clive Way, Fareham, Hants, PO18 7PP (Tel. Fareham 238100 Ext. 232). Closing date for receipt of applications 27th June, 1979.

UMIST POST DOCTORAL FELLOWSHIP

Applications are invited for the above post in the Department of Computation in multi-microprocessor systems for telecommunications systems control. This Fellowship has been established through the support of the British Post Office.

The Fellow will have an opportunity to collaborate with Professor Aspinall of the Department of Computation and Dr. E. L. Hughes of the Department of Electrical Engineering and Electronics in the use of the CYBA-M, multi-microprocessor research environment to investigate real time systems for telecommunications systems control. The work will be carried out in collaboration with the Post Office Research Centre at Marpleham Heath and the Fellow will have an opportunity to hold frequent discussions with research workers at the Post Office Research Centre and will be required to submit reports to the Post Office.

Salary is appropriate to age and experience and is on the scale £4233-£7148 per annum.

Write for an application form, quoting reference COM/18/79, to the Fellowship Officer, P.O. Box 88, Manchester M60 1CD, to whom they should be returned by 29th June, 1979.

TEESIDE POLYTECHNIC COMPUTER CENTRE

Applications are invited to fill the following posts in the Polytechnic's Computer Centre. The Centre is currently implementing a powerful UNIVAC computing system with 1.2 Giga bytes of mass storage supporting over 90 interactive terminals. In addition the Centre is planning to implement a graphics laboratory housing a wide range of modern and sophisticated graphics equipment. At the end of these planned developments the Centre will be one of the most powerful computer installations in the British educational establishments.

PROGRAMMER ANALYST or SENIOR PROGRAMMER ANALYST

P.C.U./11

(Graphics and Communication)
To join a team which will be responsible for design and implementation of the software for the graphics laboratory. The successful candidate would also be able to take part in all developments concerning the Centre's communication network.

PROGRAMMER ANALYST or SENIOR PROGRAMMER ANALYST

P.C.U./12

(Operating System and Computation)
To join a group of specialists in implementing and enhancing UNIVAC's most modern operating system, level 06 of EXEC-II.

PROGRAMMER ANALYST or SENIOR PROGRAMMER ANALYST

P.C.U./13

(Information and User Support)
To join a section with the challenging responsibility of providing information, documentation and training to the Polytechnic's large user population.

The Centre supports a wide range of programming languages and application packages. To the suitable candidate these posts offer excellent opportunities of both technical and professional development. Prospective graduates are welcome to apply.

Salaries, according to qualification and experience, will be on the following scale -

Programmer/Analyst £3420-£4781 + £312 supplement

Senior Programmer/Analyst £4920-£6748 + £312 supplement

(Both Salary scales are under cost of living review)

Informal enquiries may be made by phoning Middleborough 244179, Extension 12. Application forms and further particulars may be obtained from: The Personnel Section, Teesside Polytechnic, Cleveland TS1 3BA (Middleborough 244178), Extension 13.

CAPITAL APPTS.

FORTRAN
Programmer upgrading required for industrial and scientific development.
£4000-£5000
CALL ALL-AREA
Phone for free list of vacancies
037 5557/any 636 9659 ext

Bermuda

COBOL
Programmer \$16000
tax-free

With some of the finest beaches in the world, temperate climate, English customs and excellent sporting and social life, Bermuda has a good deal to offer; couple this with a sound career opportunity, and the proposition is highly attractive.

Our clients - the computer services wing of an insurance management company dealing with international clients - run a small but sophisticated NCR2300 installation using TP. In line with their plans to expand the services they provide, they are seeking a capable programmer who will play a key role in the design and implementation of new financial systems and who will be attracted by:

- Generous tax-free salary.
- 2-year extendible contract.
- Frequent salary reviews.
- Paid fares and accommodation assistance.

You should be single and in your twenties, with at least 2 years COBOL experience gained in a financial environment. You should have a sound knowledge of program specification and design techniques. As an important member of a small team, you must be self-motivated, analytical and able to accept responsibility for systems at an early stage.

For more details, telephone or write to Barry Litchford quoting ref. 24211.

Lloyd Chapman
Associates

123, New Bond Street, London W1Y 0HR 01-499 7781

Systems Analyst

An experienced Systems Analyst is required to take full responsibility for all systems development within a manufacturing company based in West Yorkshire.

There is already a considerable commitment to manufacturing systems with the emphasis being on on-line applications with some 15 screens throughout the company. The hardware is based on an IBM System 3, model 15D with 320Mb of disc storage.

A salary in the region of £5,700 per annum is envisaged and, if necessary, assistance with relocation can be made available. Please write with full career details stating any companies to whom you do not wish your application forwarded, and quoting reference number 587 to:

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At least £16,350 tax free per contract.

Three paid leave periods annually with three free flights home to the UK.

Free bachelor accommodation, food and laundry.

Free medical care and life assurance.

Fill in the coupon with details of experience and send to the Senior Recruitment Executive (Lockheed), IAL, Personnel Consultancy, Aeradio House, Hayes Road, Southall, Middlesex. Telephone: 01-874 5100.

Computer Servicing Saudi Arabia £16,350

Name: _____
Address: _____
Tel: _____
Experience: _____



Ref: 267

Data Express House, 3Prospect Place, Heathfield Terrace, Chiswick W. 4

BRIGHT PROSPECTS WEMBLEY BASED

NEW DEVELOPMENTS, MINI WITH MAINFRAME

Our clients handle consultancy and software for a wide range of applications for a large, profitable international group, mainly dealing with autonomous subsidiaries in the Greater London area.

Currently they are assisting first-time users from inception to implementation, chiefly order processing, warehouse control and associated applications. There is deep involvement with users and you would have the unusual opportunity of seeing projects through to completion within one or two years.

These openings have arisen from promotion of existing staff, and long term career prospects are unusually good. Working and employment conditions are above average in a base location adjacent to tube and BR.

PROJECT LEADER to £8000

The initial task would be to lead a team of six people designing and implementing a range of systems on up-to-date main frame and mini computers. Ideally you should have had two / three years' commercial analysis experience, with a knowledge of COBOL, and be capable of motivating and controlling a small team. (Ref. 150)

SENIOR PROGRAMMER to £7000

You would be involved in the design of a database and on-line system, with responsibility for two or three programmers. You should have had around three / four years' programming experience, mainly in COBOL; knowledge of IBM OS and PL/I would be useful. (Ref. 151)

Please ring us for a confidential talk, quoting the appropriate reference, or leave a message on our answering machine and we'll contact you.

EDP SYSTEMS 01.637 5796
52-53 Margaret St. London W1N 7FF



Commercial Applications Analysts & Consultants Get to the Top..

..with the Company that is already there!

CONTROL DATA is the largest computer services organisation in the world — simple as that! However, we recognise the fact that it takes more than success to attract the best people. That is why we also pay a lot of attention to the training and career development of our employees as well as paying top salaries.

We are currently seeking ANALYSTS and CONSULTANTS with significant experience of commercial applications, preferably related to IBM equipment, to join the commercial applications group within our own PROFESSIONAL SERVICES DIVISION. This team has doubled in size during the past year and opportunities for advancement into management continue to be generated.

Successful candidates will be given opportunities to:-

- Use various Data Management Systems
- Manage projects
- Visit clients
- Work on mini-computers
- Operate as consultants
- Provide sales support

● Work on differing mainframes including IBM3031

Job opportunities now exist in

CENTRAL LONDON & NORTH WEST ENGLAND

and salaries will be commensurate with experience and achievement within the range

£6,000 to £10,000 p.a.

The biggest advancement of your career could be as far away as your telephone.

Please contact Caroline Connors and quote reference PSC 049.

SMR Technical Support People Ltd.,
Victory House, 99 Regent Street,
London W1R 7HB.
Telephone: 01-734 9776.



MORE THAN A COMPUTER COMPANY

DP Consultants London up to £10,000

A major theme of the expansion of Price Waterhouse Associates is the growth of our specialist EDP group. We want to recruit professional and ambitious data processing staff for our offices in Birmingham, Bristol, Glasgow, Leeds, Leicester, Liverpool, London, Manchester, Newcastle, Nottingham and Southampton. We are looking for experienced, technically competent DP staff who have at least four years' commercial systems experience and who want the challenge and additional experience to be gained by consultancy. We are particularly interested in hearing from people who are currently working as senior analysts in well established DP departments or in a technical sales support capacity with a mini or mainframe manufacturer. Practical experience of implementing database or of distributed processing would be an advantage. A working knowledge of French is desirable but not essential.

Our job is to provide clients with first class advice and assistance on all aspects of their DP activities. This may require us to advise clients on their organisation, hardware and software strategy or to work as members of multi-disciplinary teams including accountants and engineers on systems implementation. We are looking for experienced, technically competent DP staff who have at least four years' commercial systems experience and who want the challenge and additional experience to be gained by consultancy. We are particularly interested in hearing from people who are currently working as senior analysts in well established DP departments or in a technical sales support capacity with a mini or mainframe manufacturer. Practical experience of implementing database or of distributed processing would be an advantage. A working knowledge of French is desirable but not essential.

Starting salaries will be negotiated up to £10,000 p.a.; substantial allowances are paid for work overseas. First class training is provided in both technical and management consultancy skills.

Candidates, male or female, should write in confidence for a personal history form quoting reference M/S/3761 to David Prosser, Executive Selection Division, Southwark Towers, 12 London Bridge Street, London SE1 8BY.

Price Waterhouse Associates

BOROUGH OF SOUTH TYNESIDE Finance Department

SYSTEMS ANALYST (2) £8232-£8585
(National pay award pending from 1 July, 1979)
SENIOR PROGRAMMER £8232-£8585

The Authority is now actively planning for the introduction in late 1979 of an ICL 2950 computer with communications equipment to replace an ICL 1902A.

Applicants to join the Computer Division should have relevant experience, with knowledge of ICL systems and on-line processing an advantage. Training will be given if required.

Application forms are available from the Chief Personnel and Management Services Officer (Ref. 84), Westgate Hall, Westgate Village, South Shields, Tyne and Wear (Telephone: South Shields 662191), and must be returned by noon, 22nd June, 1979.

PORTSMOUTH POLYTECHNIC COMPUTING CENTRE

LECTURER/SENIOR LECTURER IN DATA PROCESSING

A Lecturer/Senior Lecturer is required to teach data processing and programming at degree level. The person appointed will have the opportunity of participating in the research and development activities of the Computing Centre.

Salary scale: £4100 to £8061 (efficiency band) to £7877 per annum (under review).
Application forms and further details from the Staff Officer, Portsmouth Polytechnic, Alameda House, Museum Road, Portsmouth, PO1 20Q, to whom completed applications should be returned by 25th June, 1979. Closing at 4.30 p.m.

CITY AND GUILDS OF LONDON INSTITUTE SYSTEMS ANALYST

SALARY UP TO £7,500

The Institute is an independent, self-financing body and our main business is the provision of schemes and examinations of a technical and vocational nature and a corresponding range of tests leading to skill qualifications. We are developing systems connected with our examination procedures using a PDP 11/34 operating under RSX11M. Programming is being carried out in BASIC+2 and MACRO II.

We are looking for a Systems Analyst to work on the above systems; he/she should have at least 18 months' experience on PDP machines (some of which could have been spent in programming).

Other systems are being developed using a bureau based IBM 3032 under OS/MVS and there may be opportunities to work on these systems at a later date.

We provide a friendly, relaxed atmosphere and pleasant working conditions. Benefits include:

- Generously subsidised restaurant
- Free tea and coffee
- On-call payments (where applicable)
- Flexibility of working hours
- 15 days (+6 Institute days) leave — pro rata 1st year of service
- 50% BUPA scheme
- 1st class pension scheme

If you would like any further information telephone Mike Beaver, on 01-278 2488. Application forms may be obtained from the Personnel Department, 46 Britannia Street, London WC1X 8RG.

COMPUTER PERSONNEL APPOINTMENTS LTD. Career Specialists and Consultants for D.P. MANAGERS, SYSTEMS ANALYSTS, PROGRAMMERS AND OPERATORS

Specialists in Northern Counties and Scotland
For jobseekers' forms apply to:
68 New Street, Birmingham B2 3QU, 021-643 0981

STRATHCLYDE REGIONAL COUNCIL

DEPARTMENT OF EDUCATION FURTHER EDUCATION

Applications are invited for the undernoted post at Cumbernauld Technical College, Town Centre, Cumbernauld, Glasgow G87 1HU.

LECTURER 'B' IN COMPUTER STUDIES AND OPERATIONS

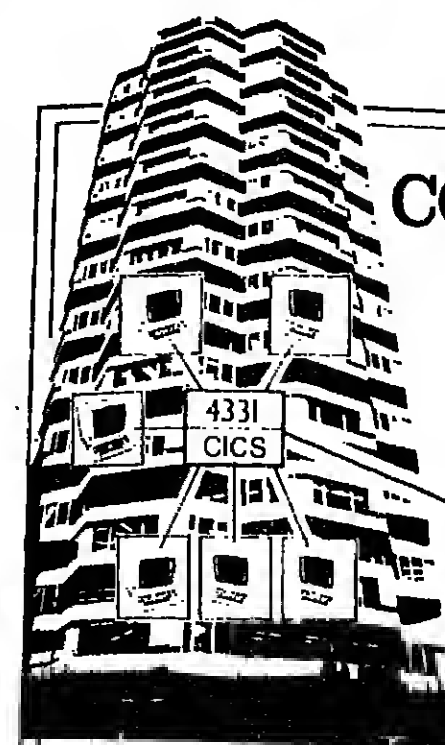
Degree, SHNC Computer Data Processing, Diploma in Systems Analysis and Design, CGLI Advanced Certificate or equivalent. Relevant operational experience essential.

Teacher training would be an advantage but training can be given on an in-service basis.

Salary Scale: Lecturer 'B' — £4113-£8033. Picking on the salary scale will be given for relevant experience.

Forms of application and further particulars can be obtained from the College, to whom completed applications should be returned not later than 28th June 1979.

EDWARD MILLER, Director of Education



COMPUTERS HAVE COME TO THE TOWER Hill Samuel Life Assurance Croydon

The NLA Tower is a modern, air-conditioned office block which houses the Head Office and data processing functions of Hill Samuel Life Assurance. A well known landmark in the Croydon area, the tower is adjacent to East Croydon Station which has excellent rail links with Central London (Victoria and London Bridge), Sussex and Surrey. Road links to Kent give excellent access.

HSLA offers excellent salaries and a number of fringe benefits which are normally restricted to companies in the Financial sector.



The Business Scene

Hill Samuel Life Assurance is a part of a large group with wide ranging interests in Banking, Insurance, Pension and Investment. HSLA offers a full and competitive range of annuities, life assurance and linked policies. Data Processing has been an integral part of the company growth since HSLA was formed. Strong links exist with user departments and particular emphasis placed on cost-effective solutions to business problems and the provision of the service which the user needs.

Senior Systems Analysts

£7,000 - £8,000

We need a person capable of doing a good job immediately and with the potential to move into a more senior position in the department. Although technical skills are important, personality, commonsense, intelligence and an enquiring mind, coupled with the ability to get on well with users, is essential.

The Senior Systems Analyst will have at least three years analytical experience and will have completed a major project. The ability to accept responsibility for implementing large systems, as a Project Leader, to time and budget, is essential. The position requires a programming background and experience of insurance systems is advantageous.

Positions open to male & female applicants, please telephone (24 hour service) for initial discussion or write to address below. QUOTE REF. CW143.9J

COMPUTER AND
PERSONNEL
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Computing
Services
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01-686 9693

A.M.P. HOUSE, DINGWALL RD.
CROYDON, CR9 2AU

We're successful because our staff are

Data Logic operates at the forefront of computing, applying the very latest hardware and techniques to practical commercial problems. We cover the range from mainframes to the smallest microcomputers. We are leaders in the use of microprocessors for applications that not so long ago required large machines.

Many of the systems we supply go far beyond providing extra speed and cost savings. They will revolutionise the way the user organisations operate. Several projects involve dispersed networks of ten or more minicomputers. Our largest turnkey system incorporates twenty-three machines and close to three hundred display terminals across the country — a totally new system which will serve almost every function within a leading company. A new police contract involves the

first use in the UK of a mini for a complex data retrieval application — with our own advanced methods for rapid, generalised record searches.

The exceptional scope and quality of work is important to our staff. We can match their individual experience to their projects. Equally, we can ensure that each project adds to their experience. As computing itself develops, so do they.

Over the past year Data Logic has grown dramatically in size, in scope of work and in reputation. Our expansion has meant unrivalled opportunities for career progression. We are not prepared to promote people before they are ready for it. But when they are ready — and we give all the assistance we can — the positions as senior programmer, senior analyst, project manager and consultant will be there waiting for them.

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Ref P530/CW 1 for maintenance, mini computer and mixed processor systems, usually supporting terminal networks. Increasingly, Data Logic's turnkey projects involve minicomputers at multiple sites.

Applicants must have at least five years' experience, including some work in consultancy, systems design or team management. Substantial knowledge is required of either high level language implementation on a leading miniframe or assembler language development on DCL. Data General or other leading minicomputers.

We are especially interested in experience of:

- database systems
- distributed systems
- data communications
- telemetry
- operating systems design and implementation

Salaries will be highly competitive and a company car is provided to staff at senior level or above.

There are vacancies at our Greenford, Birmingham and Manchester offices.

Write or call, quoting the appropriate reference number:
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Data Logic Limited
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London NW1
01-486 7288

(A Reviewer's Postcard)

Programmers

Ref P531/CW 1 for both mainframe and minicomputer projects which include commercial applications, monitoring and control, and scientific analysis.

Applicants should have at least three years' programming and/or analysis experience in high-level language or assembler on any leading mainframe or minicomputer.

This is an outstanding opportunity to gain experience in the development of complex high performance software. Our programmers work in small teams, taking considerable responsibility for distinct areas of the total system.

Salaries will be highly competitive. Vacancies exist at our Greenford, Birmingham and Manchester offices.

Data Logic

Ref P530/CW 1

MYRIAD OPERATIONS MANAGER

(DEPUTY D.P.M.)

MIDDLESEX (HAYES)

TO £7500

In order to cope with the ever-increasing demands being placed upon their computer installation our client is now seeking an Operations Manager/Deputy Data Processing Manager to be wholly responsible for the day-to-day running of their ICL 2904 configuration.

This public company is a major force in the design, manufacture and marketing of a range of products within the greeting card industry. A number of financial and stock control systems are run, at present utilising both DDE and on-line VDU's, and there are plans for extensive future development.

The Operations Manager will be principally responsible for the management of both machine and twelve staff and should therefore be able to offer a sound background in all aspects of ICL computer operations and control. The person appointed will also become involved in the future development of the installation and therefore an appreciation of systems and programming techniques will be advantageous, although necessary training courses will be provided.

This is a senior position within the company, vital to the installation's future growth. Benefits include an attractive company pension scheme, subsidised canteen and relocation assistance will be considered where applicable.

Ref. SW1/1406/CW

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We operate an IBM 370/125 with DOS/POWER/VS, CICS, RJE and DLI, shortly to be upgraded

to IBM 370/138. An IBM 4341 is on order.

A 3 shift system is in operation, for which there is a shift allowance. And as well as a salary of around £4000 pa, we're offering a good range of company benefits including a subsidised restaurant and staff purchasing facilities.

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Susan Turner,
Johnson & Johnson Ltd,
260 Bath Road, Slough, Berks.
Tel: Slough 31234 Ext 448.

Johnson & Johnson

DUNDEE COLLEGE OF TECHNOLOGY THE COMPUTER CENTRE ANALYST/PROGRAMMER

Applications are invited from suitably experienced persons for a new post of Analyst/Programmer in the Computer Centre, which is responsible for all computer services in the college. There are interesting opportunities in both technical and commercial applications on the college's OCSYSTEM-20, POP 11 and microcomputer systems. Duties will include an advisory service to users.

Salary at an appropriate point on the AP11 scale £4388-£4773 (currently under review) with possibility of future advancement to a higher scale. Flexible arrangements regarding the cost of removal expenses may be payable.

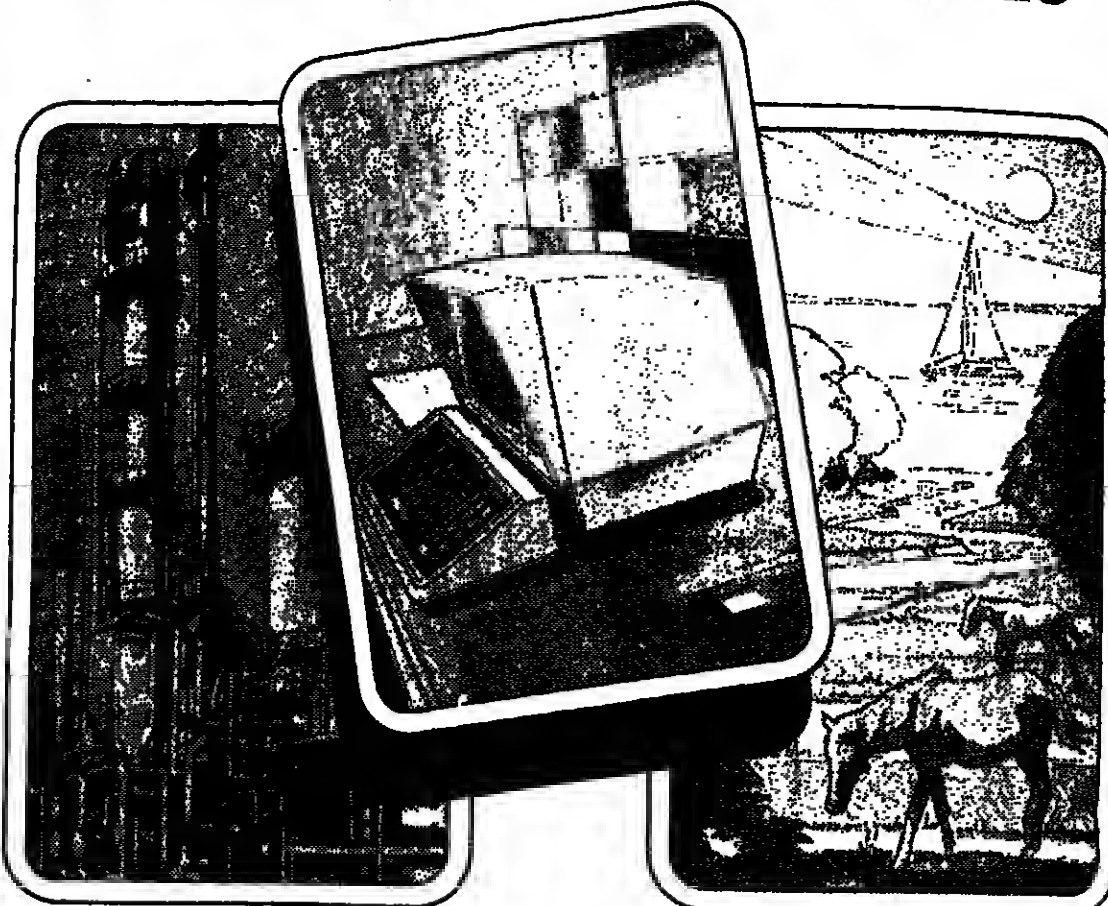
Further particulars and application forms may be obtained from the Administrative Assistant (Establishment), Dundee College of Technology, Bell Street, Dundee DD1 1HG, to whom a completed application should be returned by Wednesday, 27 June 1979.

UNIVERSITY OF SALFORD COMPUTING LABORATORY PROGRAMMER

In the Operating Systems Group of the Computing Laboratory to provide systems support and development for the University's computing services on the POPE 100/100 and 12, 1804S configurations. Applicants should have a good knowledge of FORTRAN and any assembly language experience would be an advantage.

It is intended that the programmer would also assist in production of software for microprocessors in the laboratory. Further particulars and application forms may be obtained from the Registrar, University of Salford, Salford M6 6PU, to whom a completed application should be returned by Wednesday, 27 June 1979.

COMPUTER PROFESSIONALS



YOUR NEXT CAREER MOVE

At Esso Chemical Limited, we have just embarked on one of our most ambitious DP projects.

We are taking a fresh look at our approach to information systems on our manufacturing plants using the latest computer technology to create a highly integrated data base. This will be the source of management information and the base for development of advanced applications. The project will use the latest computer hardware and Exxon's worldwide experience of computer project development.

The men and women who participate in this project will be in on the ground floor of this challenging new activity and they will be expected to develop as professionals, with the project.

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The successful candidate is expected to become a key member of the programming group and should have the potential to lead and co-ordinate projects.

We are looking for a young programming professional with at least three years experience, ideally on a large IBM configuration, who has worked with PL1, VM/CMS and data base applications. A degree in Computer Science, Engineering or a numerate discipline is essential.

Systems Analysts

You will be working closely with users who are engineering professionals, and you should have good communication skills and the potential to lead a team in the future. A degree in an Engineering related subject is essential with at least two years experience in a manufacturing or technical environment. A programming background would be an advantage.

Communications Systems Engineer

This is a unique opportunity for a proven engineer to take overall responsibility for implementing, commissioning, developing and supporting all communications on site. You should have a degree in Computer Science or equivalent and at least 5 years experience in telecommunications and/or process control software systems. Experience of Process computing real time software systems, or IBM Terminal/teleprocessing systems would be an advantage.

Great opportunities certainly but a great challenge too. You will have a lot of personal responsibility and your ability and effort will be one of the keys to ensuring a successful project completion.

That's the way everyone works at Esso Chemical Ltd. It's part of our management philosophy - to give young people real responsibility, with equally real rewards to match. Which is why the salaries that go with these jobs are really attractive and why our benefits package includes generous relocation expenses to this attractive part of the South Coast which has the Solent on one side and the New Forest on the other. So you can enjoy wide open opportunities in a part of the World that still has plenty of wide open spaces.

To find out more about the opportunities we are offering, telephone Howard Winters, Employee Relations Adviser write for an application form to: Esso Chemical Limited, Fawley, Southampton, Tel: Southampton (0703) 893822.



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We are looking for an experienced programmer interested in expanding his/her career into systems work.

The post will ideally suit someone with about two years COBOL programming experience who is now looking for a wider job responsibility.

The job requires both the ability to work with minimum supervision and to communicate effectively with all levels of staff and management in an industrial environment.

The Company which is part of a major UK Group is entering the next phase of computer development. The person appointed will report direct to the D.P. Manager and the post offers both a high level of job interest and very attractive terms of employment.

Please write, giving details of experience, or telephone: A. S. Langley, Recruitment Officer

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Data Processing
Division

Operations Planning Analyst

Salary up to £7,000

The Open University, founded in 1969, is now a major force in higher education. It has pioneered new forms of undergraduate and post-experience education, and its future plans include developments requiring a similar level of innovation.

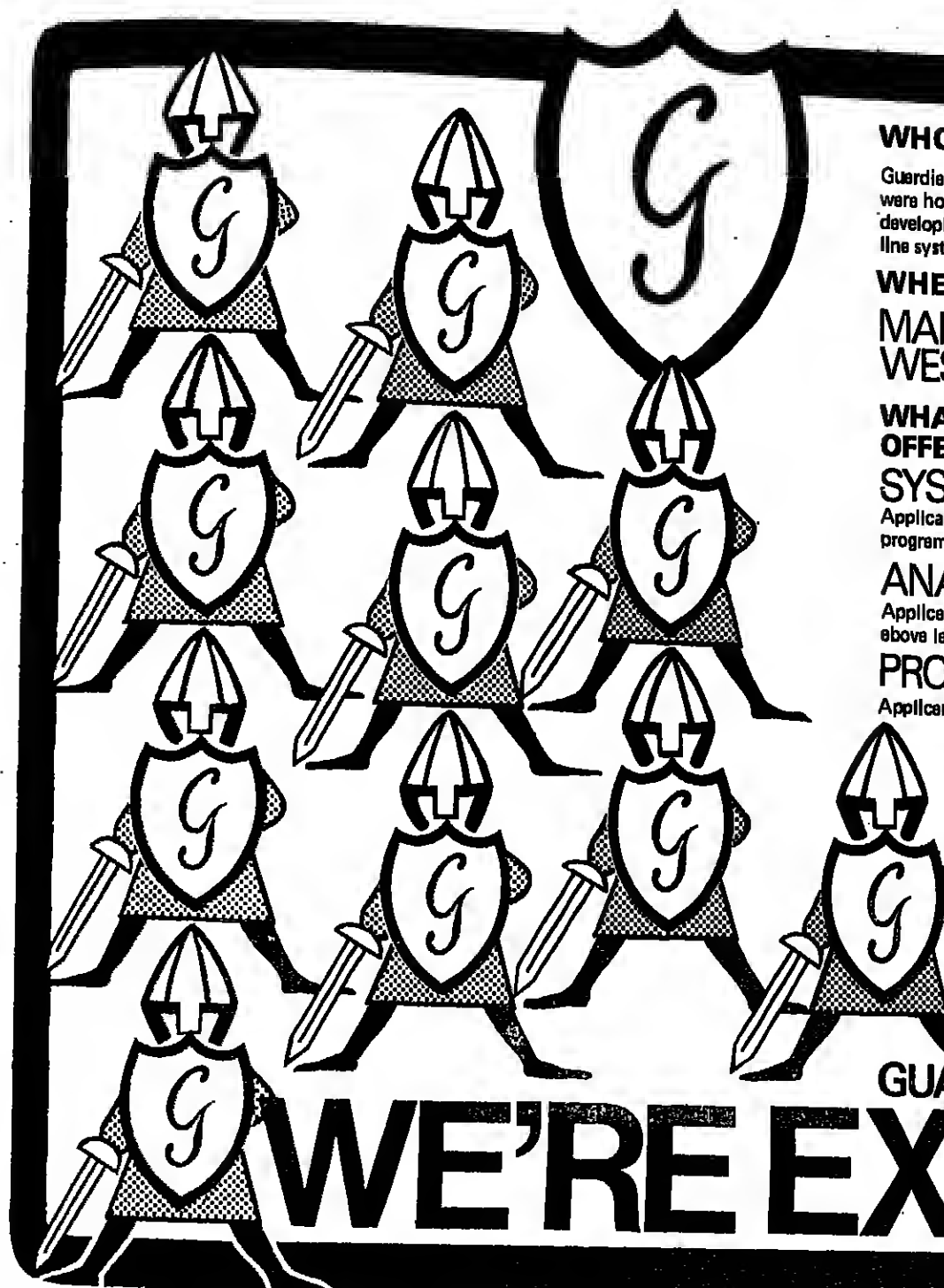
Data Processing has been fundamental to the growth of the University and is scheduled to play a major part in its continuing development.

The Operations Planning Section plays a vital role in representing Data Centres interests in the early development of systems. In facilitating the hand-over of newly developed systems to the operation and in supporting accepted systems on a continuing basis.

Applications are invited from persons who have experience of programming and computer system design, preferably with knowledge of Univac 1100. Career development prospects are good and in addition we offer: good holiday provisions; excellent pension with house available to rent or to purchase at reasonable prices; sport/social facilities.

Application forms and further particulars are available from the Recruitment Office (DD2478/2), The Open University, Milton Keynes MK7 9BA, or from the Registrar, The Open University, Milton Keynes MK8 9BS. 24-hour answering service.

Closing date for applications: 29th June



WHO IS GUARDIAN?

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WHERE IS GUARDIAN? MANCHESTER AND WEST YORKSHIRE

WHAT POSITIONS ARE GUARDIAN CURRENTLY OFFERING?

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Applicants must have 2 years analysis experience on disc based computers plus previous programming experience.

ANALYST PROGRAMMERS

Applicants must have 3 years commercial programming experience on any, or a mix of the above languages.

PROGRAMMERS

Applicants must have one years experience on any of the above languages.

WHAT REWARDS DO GUARDIAN OFFER?

Starting salary from £3500 to £6500.
Profit share.
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You have some experience of implementing systems in a commercial environment and would now like to join a highly professional team who are taking computing to the Company using the latest equipment and techniques.

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You probably have 12+ months' commercial programming experience and now wish to train as a Systems Analyst.

PROGRAMMERS

If you have COBOL or RPG II experience then join an enthusiastic hard-working team in which satisfaction is high and rewards reflect ability.

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- * 3 bedroom detached houses with garage for £15,500, just 8 minutes away
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ALAN CARNELL ON 021-236 3781 (24 hour answering service) OR 021-784 6063 (evenings and weekends) or for an informal chat with the Company contact: BILL HALFORD ON Huntingdon (0480) 67481 (reversing charges).

Specialist Computer Recruitment Ltd

London 01-935 0671/3, Mandeville Place, Wigmore Street, London W1M 5LB
Birmingham 021-236 3781/35-37, Green Charles Street, Queensway, Birmingham B3 3JY
Manchester 061-633 0427, Blackfriars House, The Parsonage, Manchester M3 2JA

Specialist Computer Recruitment Ltd

Beaufort



Eagle Star Group

Bring Your Programming Skills to the Cotswolds

We are looking for Programmers with a minimum of 1 year's experience of PL/1 or Cobol and, ideally, knowledge of structured programming techniques to join our computer department. The computer centre is located in modern offices in Cheltenham and houses two large IBM mainframes using IMS DB/DC to support countryside terminal networks and several data base systems.

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Please phone Alan Mannion now on 0452 418810 (day), 04536 3299 (after 7 p.m.) or write to him at the address below.

A. F. Mannion
BEAUFORT COMPUTER SERVICES LIMITED

BEAUFORT COMPUTER SERVICES LIMITED
INCUBATOR AND TRAINING DIVISION
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CLOUDESTON GL1 1PG Tel: 0452 418810

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ORIGINAL SYSTEMS DEVELOPMENT

London, NW c. £8,500 + Car

This is an opportunity to join a leading company which designs, manufactures and markets the world's most successful word-processing systems. They are enjoying tremendous growth and, naturally, career prospects are very good indeed.

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This exciting international company will double its turnover in 1979, giving those who join now a wonderful chance to progress their careers. If you would like to hear more about it, then ring us for a confidential exchange of information or write briefly quoting ref. 967, or leave a message on our answering machine after hours and we'll contact you.

EDP SYSTEMS 01.637 5796
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PROGRAMMER £3651-£3831

CITY OF BIRMINGHAM POLYTECHNIC

To work in the Computer Centre which operates ICL 1900 and micro-computer equipment and is proposing to install other computer systems.

A degree in Computer Science or an H.N.D. in Computer Studies would be an ideal qualification, but consideration will be given to applicants with other computing experience.

Candidates, male/female, may obtain application form (returnable by 28th June, 1979) and further particulars from:

The Personnel Officer
City of Birmingham Polytechnic
P Block, Perry Barr
Birmingham B44 2JU

UNIVERSITY OF SOUTHAMPTON

GRADUATING IN COMPUTER SCIENCE?

Ring Southampton (0703) 558122. Ext. 2398 for details of vacancies.

Salary 10: £5,489 plus U.S.S. benefits.
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£9,000-£9,000 per annum with leading electronics company in HAINAUT, Essex (relocation assistance).

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3. **WORD PROCESSOR** engineer as above. Location — Dorking/Reigate.
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Customer Service Manager, Tel: C/F 68321
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LESSON 1

Contact us. We're interviewing right now!

We have many excellent career opportunities for Field Engineers who would like to become lecturers at our training school in South Harrow. It could prove a logical step in your career... even if you've had no previous lecturing experience.

LESSON 2

Consider whether you would enjoy teaching others.

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LESSON 3

Ask yourself if you have the personality.

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LESSON 4

Check out the company you will be joining.

We're one of the world's foremost computer companies with over 63,000 installations world-wide. Our products are used across the whole computer spectrum from commercial applications through to scientific tasks.

LESSON 5

Act now while this is still fresh on your mind.

Phone or write to Janet Field at the address below.

COMPUTER PROFESSIONALS

A REWARDING CAREER IN SALES WITH A MAJOR MANUFACTURER

LOCATIONS SOUTH-EAST ENGLAND

We are recruiting into key positions for an International Computer Manufacturer offering a structured career path for trainee and experienced Sales Executives, where you will be working with advanced equipment that enjoys an excellent world-wide reputation.

Our client provides everything you require to be successful:

- * exciting highly competitive products
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You could become part of our client's exciting future and join a professional and successful sales force where you would enjoy the substantial rewards of a renowned manufacturer. Ideally candidates should possess:

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Birmingham 021-236 3781 35-37 Great Charles Street, Queensway, Birmingham B3 3JY
Manchester 061-833 0427 Blackfriars House, The Parsonage, Manchester M3 2JA

Specialist Computer Recruitment Ltd

ab minicomputer special

Working in minicomputers has special advantages — 'across the board' involvement with interesting applications and industries — better career path options particularly at the senior levels — training in up-to-date techniques, languages, etc., that will stand you in good stead for years. Our consultants are in regular contact with all of the recognised 'mini' companies — six are featured below — and applicants that we have introduced to them tell us we're right.

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(Start £6,000 + Overtime + 2 litre car)

Fabulous opportunity to join a leading manufacturer of a wide range of prestige mini computers and peripherals. Excellent prospects include above average growth (43% increase in turnover plus two new branch offices plus 21 new product launches, all in the last year). Helpful friendly young management.

Basic salary £6,000 plus overtime plus luxurious 2 litre car plus training. If you are ambitious, feel capable of assuming responsibility, why not take that all important step forward — If living in London, Home Counties, Midlands, West or North call us today but hurry...

Ref. EK2014.

STOP PRESS

THE TOP micro-maker offering exceptional benefits package for minicomputer experience.
Ref. EK2137

SENIOR PROGRAMMER

£6,500 + bonus + choice of car

Our Client, a successful hardware and systems company with an impressive customer base enjoys a good reputation supported by a comprehensive product range. They offer a fabulous opportunity to an ambitious programmer (pref. Basic) to develop on-line applications. Based in Kingston or West London, you will have lots of variety and contact with people. Only limited travel and plenty of scope for personal advancement. Nice people, generous (exceptionally low staff turnover), superb working conditions (sometimes work from home), you will attend training courses. £6,500 + car + profit share. Ring for further details now. Ref. CC613.

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Working based company marketing middle to commercial users offers great opportunity to self-starters with ASSEMBLER working on File Management systems, communications, etc. Friendly young colleagues. Free car park, or station just up the road. If petrol runs short! Ref. CC3098

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£17,000 + Car

Our client, one of the New Leaders in the Mini-Computer field, who during 1978: Broke the £100M barrier. Doubled their Turnover. Doubled their Customer Base. Built 2 Major Facilities. are offering exciting opportunities in the South to ambitious Sales Executives, if you need: Basic Salary c. £7,000 Earnings Guarantee Realistic Quotas Generous Commission (on quota £17,000) 2 litre car Comprehensive Training Unrivalled management opportunities Then call today. Ref. CS1146

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£8K-10K

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The Company is based in the Maidenhead-Reading area with good travel to London and the West Coast.

Employment will come easily for an achiever. If you are ready now, see below.

STOP PRESS, URGENT EUROPEAN M.I.S. MANAGER

c. £10K + benefits

Maidenhead/Reading area.

Ref. CA768

ab executive (kingston) tel 01-549 6441

OPERATORS.....

COULD YOU DRIVE an IBM 3031 for



Yes? then here is the ideal career move for you to make by joining Avis at their Europe, Africa and Middle East headquarters located at Bracknell, Berkshire. An IBM 3031 running under MVS/JES 2 and TSO has recently been installed and forms the base for systems being run for Avis Operations in France, Italy, Germany and the U.K. via an RJE network.

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SF10099/CW14/6

Our client's group of companies is the largest of its kind in the country. Their services are world-wide and include insurance and reinsurance, broking, shipping, trading and engineering. They utilise the facilities of an IBM 370/158 (soon to be replaced by an IBM 30/31) and are currently seeking an experienced OS operator approximately 2-3 years' practical knowledge of VSI and/or MVS. Based in the city you will enjoy working a standard three-shift system.

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SF10091/CW14/6

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KS10095/CW14/6

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SYSTEMS ANALYSTS

LANCS. c£8800
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SYSTEMS ANALYSTS

NORTHWEST c£7000
Our client requires Analysts to supplement project teams for the expansion of work at present. IBM experience an advantage. Ref. 1166.

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MIDLANDS £6300
Our client requires a project leader to run a development team working on a communications network. ICL Cobol/Plan experience. Ref. 1140.

ANALYST PROGRAMMERS

LANCS. £8000
Our client requires Analyst Programmers with IBM/Cobol experience to work on a leading expanding installation. Excellent career opportunities. Ref. 1064.

PROGRAMMER ANALYST

MIDLANDS c£5000
Programmer Analysts required to work on ICL equipment in a commercial environment. Cobol/Plan experience an advantage. Ref. 1170.

ANALYST PROGRAMMERS

NORTH £5600
Analyst Programmers with ICL Cobol experience are required to work in various installations across the North. Ref. 1156.

ANALYST PROGRAMMERS

YORKS. to £5500
ICL/Plan experience would be considered ideal by our client who is currently expanding the D.P. centre. Ref. 1164.

PROGRAMMERS

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Programmers are needed in various installations in Eire to work on DEC PDP11s. Dibal or Basic experience an advantage. Ref. 1158.

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Programmers with Honeywell/Cobol experience and a Software interest are required by our client. Bonus scheme/relocation expenses. Ref. 1151.

CONTACT: JOAN JOHNSTONE
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MIDLANDS

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For details of these and other contracts please contact Judy Lane/Lynn Barton on 061-233 9341/8 (24 HRS.)

Tomorrow's Automation Systems Today

Confirming increasing industry speculation, a Surrey based high technology systems house today announced a plan for expansion into the 1980's. Riding on the crest of the mini and micro computer revolution, this specialist subsidiary of a prestigious international engineering consultancy group have established themselves as a leading exponent of software and hardware solutions to industrial and business automation problems. With a rapidly filling order book they are now seeking to recruit software specialists experienced in the development of mini and micro based systems for applications such as Process Plant Control, Machine Shop Automation, Communication Systems, and Motorway Signalling. Offering salaries at the top of the market range up to nine and a half thousand pounds per annum, career prospects for steady growth and attract high quality staff whose aspirations are towards true professionalism - a challenging career in a well established and successful company as well as keeping pace with the very latest computer technology.

For further information about these ground floor opportunities, call, in confidence, James Plummer, Senior Consultant on 01-935 0671 or 01-650 6971 evenings and weekends.

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Manchester 061-633 0427 Blackfriars House, The Personage, Manchester M3 2JA

SYSTEMS MANAGER £ Negotiable

A major international company is seeking a management orientated OP expert to take charge of systems development and ensure cost effective use of the company's systems development resources. Applicants with at least 10 years' OP experience must ideally have proven management experience and administrative ability. SUSSEX COAST.

PROJECT LEADER £8,000+

A well known company is seeking a Project Leader to take charge of around 5 analysts and programmers working on financial and commercial applications. Interesting development work. No maintenance. Applicants must have supervisory experience in a senior analyst capacity. SLOUGH.

SYSTEMS DESIGNER C. £8,000

This position would suit an Analyst wishing to get on with the work of maintaining a now on-line systems design (OL1) which is halfway through development - and not have user contact. Excellent prospects. CROYDON.

ANALYST/PROGRAMMER TO £7,500

Could the idea of working in a new OP department with total involvement interest you? You will need to have at least 2 years' RPL II experience and one year's analysis preferably gained on a manufacturing environment. The new installation will be an IBM System 3/4 SUNBURY ON-THAMES.

BUSINESS ANALYST TO £8,000

Two analysts are urgently required to work with users, produce user manuals and to liaise with technical teams. Applications cover financial, accounting package and payroll. CROYDON.

ANALYST/PROGRAMMER TO £7,000 TO £6,000

Two to three years' experience of COBOL is required by a commercial services company. The analyst/programmer must have some supervisory experience as well, in order to take charge of a small team of programmers. NR. HEMEL HEMPSTEAD.

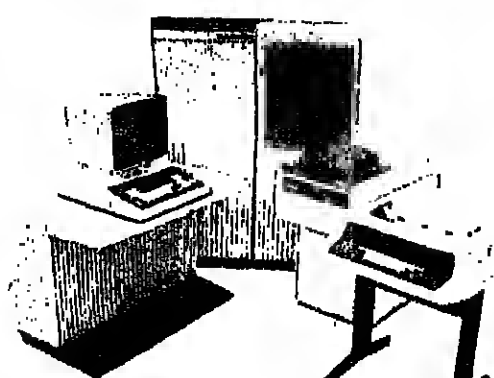
PROGRAMMERS TO £6,300 JUNIOR PROGRAMMERS TO £5,500

COBOL programmers are required for a prestigious manufacturing company. Candidates with at least 2 years' COBOL, ideally gained on a System 10, are urgently required. Alternatively, IBM ASSEMBLER or RPL II considered. SLOUGH.

To apply for any of the above vacancies, please phone for an Application Form. In addition to the above, we have various vacancies throughout London and the Home Counties seeking computer staff of all qualifications and experience. Please phone for details of positions that might interest you in your chosen locality.

AMES PERSONNEL

Employment Agency Suite 14, Dryden Chambers,
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JOIN THE 3200 TEAM

Out In Front
The new Perkin-Elmer Second Generation machines (see advert on Page 17) are selling so well we need more analysts and support engineers. Join the 3200 Team and be out in front with the latest in 32 bit hardware and software.

Salaries to £7000
PLUS car, PLUS 'large company' benefits. For further details phone Christine Furlen on Slough 34611 or send C.V.

PERKIN-ELMER DATA SYSTEMS LTD.

International Support Group Perkin-Elmer Data Systems Ltd., 227 Bath Road, Slough, Berks.

UNIVERSITY OF ESSEX

Programmer in the Department of Computer Science

Applications are invited for a post of Programmer to maintain and develop software, primarily for the DEC System-10. The appointment is a temporary one, tenable from 1 July, 1979, or as soon as possible thereafter, to 30 September, 1980. Applicants should possess relevant academic qualifications, have a specific interest in systems software and preferably some previous experience. Salary on the Range 10 or 1A scale: £3898-£8321 or £4232-£1148 per annum (both scales subject to revision from 1 October, 1979).

Applications (three copies), including a curriculum vitae and the names and addresses of two referees, should reach the Registrar (AG/82/CW), University of Essex, Wivenhoe Park, Colchester CO4 3SQ, from whom further particulars may be obtained, by July 8, 1979.

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APPOINTMENT OF LECTURERS IN COMPUTER STUDIES
The Department of Computer Science, University of Essex, is seeking applications for the post of Lecturer in Computer Studies. The post is a full-time position, tenable from 1 July, 1979, or as soon as possible thereafter, to 30 September, 1980. Applicants should possess relevant academic qualifications, have a specific interest in systems software and preferably some previous experience. Salary on the Range 10 or 1A scale: £3898-£8321 or £4232-£1148 per annum (both scales subject to revision from 1 October, 1979).

UMIST LECTURERS IN COMPUTATION

The Department of Computation is an expanding department with one of the largest Honours Schools in the country. The graduate output is highly sought-after by industry. The Department is restorably well-equipped, having two MOD-ONE computers, six POP 11/03 computers and one 11/34 for research. The Department also makes good use of the Regional Centre's large CDC 7600 computer.

(a) Systems Analysis and Data Processing
Ref: COM 88/1/80
(b) Systems Software and Language Teaching
Ref: COM 88/2/80
(c) Applications of microelectronics, including microprocessors and design methodology via Distributed Computer Systems
Ref: COM 88/3/80
Applicants should have had previous professional experience in an appropriate environment; previous teaching experience is not essential. The salary scale is £4232-£8462 p.a. which is subject to a guaranteed revision from October 1979 plus a cost of living rise.
Application forms and further particulars may be obtained from the Registrar, UMIST, P.O. Box 88, Manchester M60 1UD, quoting the appropriate reference. Closing date: 8th July, 1979.

Applications are invited for the following post at Police Headquarters, Ripley, Derbyshire. A full description is available.

SYSTEMS ANALYST

The salary will be in accordance with the National Joint Council for Local Authorities Administrative, Professional, Technical and Clerical Staff P.O.D. Scale £5415-£8030 per annum plus £312 per annum supplement. The successful applicant will be required to form part of an existing computer project team. He/she should have experience in the design and programming of Real-Time Systems using mini computer hardware and should have a good knowledge of at least one assembler and one high level language and experience of testing and resolution of problems at system level.
The successful applicant will be required, under the direction of the project manager, to assist in the evaluation, design and development of on-line, real-time computer systems for the Derbyshire Constabulary which will include command and control and information systems. Their flexibility to implementation and therefore continuing system development and maintenance, also liaising with the local authority in connection with the design and development of police applications on their I.A.M. main frame.
A degree or appropriate professional qualifications is desirable. Application forms may be obtained from the Chief Constable, Police Headquarters, Ripley Hall, Ripley, and should be returned without delay.

SENIOR PROGRAMMERS

Riyadh, Saudi Arabia

The Civil Service Bureau of the Government of Saudi Arabia has developed a computerised Personnel and Payroll Data Base System, to handle reports on salary administration, personnel movements, education planning, placement selection and manpower development.

Successful applicants are expected to participate in implementing this System, as well as develop further Sub-Systems, using IBM 370/158 OS/VS, IMS.

Requirements: a minimum of

- College degree or computing.
 - Seven years' COBOL programming experience with the last three years in Data Base applications.
- Benefits:**
- Attractive salary depending upon qualification.
 - 48 days' annual leave.
 - Air travel for self and family.
 - Housing and transportation allowances.

Correspond to (no later than Aug. 15, '79):

Director
Data Processing Dept.
Civil Service Bureau
Washim Street
Riyadh, Saudi Arabia

CO OP

NORTH MIDLANDS CO-OPERATIVE SOCIETY LIMITED

require

SYSTEMS ANALYST

Applications are invited for the above post from persons with at least three years' experience in systems analysis within a 1900/2800 COBOL environment. The Society operates a batch processing 2803 system with EDS 80s, DDE input and an FJE link to the CMS computer centre in Manchester. The Computer Department is situated at Talks near Stoke-on-Trent.
The successful candidate will be responsible for the design and implementation of systems, involving the supervision of a small team of programmers and will also deputise for the DP Manager in his absence.
Initial salary will be in the range £5,000-£5,700 depending upon experience and qualifications.

Applications should be addressed to:
The Personnel Officer
North Midlands Co-operative Society Limited
10 Newcastle Street
Burslem, Stoke-on-Trent
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Our immediate need is for men and women who have experience of computer maintenance, fault diagnosis and rectification on both mainframes and peripherals and including disc drives. Ideally you should also have some knowledge of data communications and if you have completed an appropriate course of training in computer maintenance, so much the better.

So join us here at Marconi Avionics and enjoy a good salary, attractive benefits and a stable and interesting working environment.

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Phone Chris Hill on 01-953 2030 ext 3449 or write to him at Marconi Avionics Limited, FREEPOST, Elstree Way, Borehamwood, Herts WD6 1BR. Please quote Reference MA 79071.

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For further details contact David Harvey, 01-261 8071

01-261 8071

Tomorrow's Automation Systems Today

Confirming increasing industry speculation, a Surrey based high technology systems house today announced a plan for expansion into the 1980's. Riding on the crest of the mini and micro computer revolution, this specialist subsidiary of a prestigious international engineering consultancy group have established themselves as a leading exponent of software solutions to a rapidly filling order book of industrial and business automation problems. With a rapidly filling order book they are now seeking to recruit software specialists experienced in the development of mini and micro based systems for applications such as Process Control, Machine Shop Automation, Communication Systems, and Plant Control. Offering salaries at the top of the market range up to nine and a half thousand pounds per annum, career prospects for steady growth and a Senior Member of the technical staff we are seeking true professionalism - attract high quality staff whose aspirations are towards a varied and challenging career in a well established and successful company as well as keeping pace with the very latest computer technology.

For further information about these ground floor opportunities, call, in confidence, James Plummer, Senior Consultant on 01-935 0671 or 01-650 6971 evenings and weekends.

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SYSTEMS MANAGER £ Negotiable

A major international company is seeking a management oriented DP expert to take charge of systems development and ensure cost effective use of the company's systems development resources. Applicants with at least 10 years' DP experience must ideally have proven management experience and administrative ability. SUSSEX COAST

PROJECT LEADER £8,000+

A well known company is seeking a Project Leader to take charge of around 5 analysts and programmers working on financial and commercial applications. Interesting development work. No maintenance. Applicants must have supervisory experience in a senior analyst capacity. SLOUGH

SYSTEMS DESIGNER C. £8,000

This position would suit an Analyst wishing to get on with the work of maintaining a new on-line systems design (DL) which is halfway through development - and not have too much. Excellent prospects. CROYDON

ANALYST/PROGRAMMER TO £7,500

Could the idea of working in a new DP department with total involvement interest you? You will need to have at least 2 years' RPL experience and one year's analysts previously gained in a manufacturing environment. The new installation will be an IBM System 34. SUNBURY-ON-THAMES

BUSINESS ANALYST TO £8,000

Two analysts are urgently required to work with users, produce user manuals and to liaise with technical teams. Applications cover financial, accounting packages and payroll. CROYDON

ANALYST/PROGRAMMER TO £7,000 PROGRAMMER TO £6,000

Two to three years' experience of COBOL is required by a commercial services company. The analyst/programmer must have some supervisory experience as well, in order to take charge of a small team of programmers. N. HEMEL HEMPSTEAD

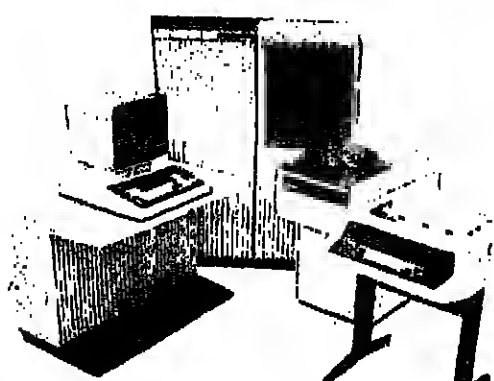
PROGRAMMERS TO £8,300 JUNIOR PROGRAMMERS TO £5,500

COBOL programmers are required for a prestigious manufacturing company. Candidates with at least 2 years' COBOL ideally gained on a System 10, are urgently required. Alternatively, IBM ASSEMBLER or RPG II considered. STOJICH

To apply for any of the above vacancies, please phone for an Application Form. In addition to the above, we have various computer positions throughout London and the Home Counties seeking computer staff of all qualifications and experience. Please phone for details of positions that might interest you in your own locality.

AMES PERSONNEL

Employment Agency Suite 14, Dryden Chambers,
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JOIN THE 3200 TEAM

Out in Front
The new Perkin-Elmer Second Generation machines (see advert on Page 17) are selling so well we need more analysts and support engineers. Join the 3200 Team and be out in front with the latest in 32 bit hardware and software.

Salaries to £7000
PLUS oer, PLUS 'large company' benefits. For further details 'phone Christine Furlen on Slough 34511 or send C.V.

PERKIN-ELMER DATA SYSTEMS LTD.

International Support Group Perkin-Elmer Data Systems Ltd., 227 Bath Road, Slough, Berks.

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To become experts on Perkin-Elmer hardware - to support the field service organizations in UK and the rest of Europe - minimum of 5 years experience in the industry.

UNIVERSITY OF ESSEX

Programmer in the Department of Computer Science

Applications are invited for a post of Programmer to maintain and develop software, primarily for the DEC System-10. The appointment is a temporary one, tenable from 1 July, 1979, or as soon as possible thereafter, to 30 September, 1980. Applicants should possess relevant academic qualifications, have a specific interest in systems software and preferably some previous experience. Salary on the Range 18 or 1A scale: £3889-£5321 or £4232-£7146 per annum (both scales subject to revision from 1 October, 1979).

Applications (three copies), including a curriculum vitae and the names and addresses of two referees, should reach the Registrar (AG/82/CW), University of Essex, Wivenhoe Park, Colchester CO4 3SQ, from whom further particulars may be obtained, by July 6, 1979.

COBOL PROGRAMMERS

London & S.E. England

Salaries to £7,000

call

MACROLOGIC

(recruitment consultants)

01-278 5634

APPOINTMENT OF LECTURER II

IN COMPUTER STUDIES

Applications are invited for a post of Lecturer II in Computer Studies. The salary scale is £4232-£7146 p.a. which is subject to a guaranteed revision from October 1979 plus a cost of living rise.

Applicants should have had previous professional experience in an appropriate environment; previous teaching experience is not essential. The salary scale is £4232-£7146 p.a. which is subject to a guaranteed revision from October 1979 plus a cost of living rise.

Applications, together with further particulars may be obtained from the Registrar, UMIST, P.O. Box 26, Manchester M60 1QU, quoting the appropriate reference. Closing date 6th July 1979.

UMIST LECTURERS IN COMPUTATION

The Department of Computation is an expanding department with one of the largest Honours Schools in the country. The graduate output is highly sought-after by industry. The Department is reasonably well equipped, having two MOD-ONE computers, six POP 11/03 computers and one 11/34 for research. The Department also makes good use of the Regional Centre's large CDC 7600 computer.

(a) Systems Analysis and Data Processing Ref: COM 88/1/80

(b) Systems Software and Language Teaching Ref: COM 88/2/80

(c) Applications of microelectronics, including microprocessors and design methodology via Distributed Computer Systems Ref: COM 88/3/80

Applicants should have had previous professional experience in an appropriate environment; previous teaching experience is not essential. The salary scale is £4232-£7146 p.a. which is subject to a guaranteed revision from October 1979 plus a cost of living rise.

Applications, together with further particulars may be obtained from the Registrar, UMIST, P.O. Box 26, Manchester M60 1QU, quoting the appropriate reference. Closing date 6th July 1979.

Applications are invited for the following post at Police Headquarters, Ripley, Derbyshire. A job description is available.

SYSTEMS ANALYST

The salary will be in accordance with the National Joint Council for Local Authorities Administrative, Professional, Technical and Clerical Staff P.O.D. Scale £5415-£8030 per annum plus £312 per annum supplement. The successful applicant will be required to form part of an existing computer project team. He/she should have experience in the design and programming of Real-Time Systems using mini computer hardware and should have a good knowledge of at least one assembler and own high level language and experience of testing and resolution of problems at system level.

The successful applicant will be required, under the direction of the project manager, to assist in the evaluation, design and development of on-line, real-time computer systems for the Derbyshire Constabulary which will include command and control and information systems, from feasibility in implementation and thereafter continuing system development and maintenance, also liaising with the local authority in connection with the design and development of police applications on their I.B.M. main frame.

A degree or appropriate professional qualifications is desirable. Application forms may be obtained from the Chief Constable, Police Headquarters, Butterley Hall, Ripley, and should be returned without delay.

SENIOR PROGRAMMERS

Riyadh, Saudi Arabia

The Civil Service Bureau of the Government of Saudi Arabia has developed a computerised Personnel and Payroll Data Base System, to handle reports on salary administration, personnel nominations, education planning, placement selection and manpower development.

Successful applicants are expected to participate in implementing this System, as well as develop further Sub-Systems, using IBM 370/158 OS/VS, IMS.

Requirements: a minimum of

- College degree in computing.
- Seven years' COBOL programming experience with the last three years in Data Base applications.

Benefits:

- Attractive salary depending upon qualification.
- 45 days' annual leave.
- Air travel for self and family.
- Housing and Transportation allowances.

Correspond to (no later than Aug. 15, '79):

Director
Data Processing Dept.
Civil Service Bureau
Woolham Street
Riyadh, Saudi Arabia



NORTH MIDLANDS CO-OPERATIVE SOCIETY LIMITED

require

SYSTEMS ANALYST

Applications are invited for the above post from persons with at least three years' experience in systems analysis within a 1900/2900 COBOL environment. The Society operates a batch processing 2903 system with EOS 00s, OOE Input and an FJE link to the CVS computer centre in Manchester. The Computer Department is situated at Telke near Stoke-on-Trent.

The successful candidate will be responsible for the design and implementation of systems, involving the supervision of a small team of programmers and will also deputise for the OP Manager in his absence. Initial salary will be in the range £5,000-£5,700 depending upon experience and qualifications.

Applications should be addressed to:

The Personnel Officer
North Midlands Co-operative Society Limited
101 Newcastle Street
Stoke-on-Trent
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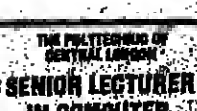
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Coverage of programming work closely with all programming, operations and engineering staff to ensure the system involving performance monitoring, control, testing, establishment of cutover procedures, system testing, establishment of cutover procedures, and monitoring utility programs which contribute to the overall security of the system.

Candidates must have a minimum of 2 years commercial programming experience, preferably using

Assembler language. Additionally, experience in systems programming, or systems initialisation, and control would be an advantage.

As one of the world's leading international airlines, British Airways offers excellent conditions of employment which includes a holiday pay supplement, inflation-proof pension scheme, subsidised cafeteria, sports and social facilities and favourable holiday air travel opportunities.

If you like the idea, and you'd like to find out more, you can arrange an early interview by phoning BABS Systems Control on 01-759 5511 Ext. 5156/3232/3697 on Tuesday 19th or Wednesday 20th June between 6 pm and 8 pm or any day during normal office hours.

Alternatively, write to: Recruitment & Selection, British Airways, P.O. Box 10, Heathrow Airport-London, Hounslow, Middlesex TW6 2JA.

British Airways welcomes applications from suitably qualified Registered Disabled Persons.

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WALSALL METROPOLITAN BOROUGH TREASURY DEPARTMENT COMPUTER DIVISION

The division is responsible for developing operations and maintaining systems of all departments of the Authority. The mainframe equipment consists of an ICL 4400 T and communications equipment. Data preparation is via a G.C.S. key to disk system; remote terminal equipment includes 7502 system and 931 terminals linked to processors. The George III operating system is used together with comma manager and driver for the real-time applications. The programming languages used COBOL and PLAN. Applications are invited for the following posts:

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(P.O. 1 (3-7))

Salary range £5748 plus £312 p.a. to £6390 plus £312 p.a. A minimum of 4 years' suitable programming experience and practice of staff supervision is required.

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(A.P. 8501)

Salary range £4611 plus £312 p.a. to £5258 plus £312 p.a. A minimum of 2 years' suitable programming experience together with knowledge of principles of staff supervision is required.

SYSTEMS ANALYST

(A.P. 8501)

Salary range £4611 plus £312 p.a. to £5258 plus £312 p.a. A programming background is required. A knowledge of the principles Systems Analysis and education to degree standard is highly desirable.

Application forms may be obtained by writing to the Treasurer, Walsall Metropolitan Borough Council, Civic Centre, Walsall WS1 1TV, or by telephoning Walsall 21444 ext. 2809. Complete forms should be returned by Monday, 25th June, 1979.

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Required for a technical consultancy mini computer.

Experience: Previous experience on IBM 1130 systems operations or equivalent is necessary. Knowledge of Fortran IV essential, Assembler and Cobol an advantage.

The Job: Supervision of end responsibility for all aspects of computer operations. Hands-on operation of computer system and peripherals.

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The System: Digital Scientific Meta 4. 32K main core. 18K auxiliary core. Operates under IBM 1130 emulation mode. Card reader 600 cpm. Line Printer 300 ipm. Multidisc (2) 40 megabytes, single disc. 1 megabyte. Plotters, digitiser and tape unit, terminals.

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Write, giving full details, within 7 days, and quoting Ref. 0.5151, to:
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If you are a trained PROGRAMMER preferably with a knowledge of the GEORGE III operating system you may like to be considered for the posts of:-

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(Ref. P.4)

Programmer

(Ref. P.6)

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Thames Water

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COMPUTER OPERATIONS SUPERVISOR

Grade 4 - £3,867-£4,164 per annum plus the current supplement of £312 per annum.

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The successful applicant will be responsible for the control and operation of the installation, including data preparation, staff control, remote batch terminal and operating system experience is essential.

Application forms are available from the Personnel/Adm./Productivity Officer, Yorkshire Water Authority, Rivers Division, 21 Park Square South, Leeds LS1 2QG (Telephone: Leeds 40191 Ext. 308) to whom they should be returned not later than Monday, 25th June, 1979.

Yorkshire Water

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We are an expanding site, currently running on ICL 1904A x 192K and a 1903A x 64K on a 3 shift basis. Conversion to 2900 is scheduled to take place during 1981.

Please write for application forms and job description to: The Personnel Manager

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Day-to-day control of the network

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Identification and reporting of all network malfunctions

We expect that the successful applicant will have had several years' practical experience of data communications. Specific knowledge of networks, Post Office Equipment and telecommunications theory would be an added advantage.

Please telephone or write to: Miss P. O'neill, Personnel & Training Officer, Grandmet Information Processing Ltd., Wyvern Way, Rockingham Rd., Uxbridge, Middx. UB8 2UD. Tel: Uxbridge 58111

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SYSTEMS AND PROGRAMMING

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Apart from current systems and programming assignments there is a requirement to specify, design, program, test and implement new, largely communications based, systems. In certain cases this includes the installation of new equipment including ICL 2900 and IBM 303X.

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Applications
Will be treated in strictest confidence and should be made directly to OON KNAGGS on WORCS 427077 (BEWLEY 400038) ext. 7 p.m. & w/e), or in writing to THE MOUNT, 1 ST JOHN'S, WORCS.

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Applicants should therefore hold a recognised accounting qualification, have a thorough understanding of Quae'st methods and have some experience of development systems.

For an application form and details of the post, please write to the Quae'st and Factor's Department, St. Ansgar, 13-15, St. Ansgar, London EC1A 4JF.

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ANALYST/PROGRAMMER PROGRAMMERS (2)

SALARY UP TO £7000

SALARY UP TO £7000

The Institute is currently in the systems investigation stage of a new main examination system (to be run on a business based IBM 303X under OS/VS), and an Analyst/Programmer and two Programmers are required to join existing staff working on this and other systems. The Analyst/Programmer should have at least 2 years' programming experience and at least 1 year's systems experience. The Programmer posts require at least 18 months' IBM 303X experience.

We offer an on-going training plan, and there may be an opportunity for Analyst/Programmer to move into systems analysis and design, systems programming. Other systems are being developed in-house under PDP 11/84 under RSX 11M and there may be an opportunity to move into the team programming in SAS, MACRO/II.

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SOFTWARE ENGINEER Micro/Mini computers - some experience in Assembly programming. Area: Nottingham. Salary: Negotiable. Ref: P423

PROGRAMMER 1 year plus any commercial language and experience. Area: Derbyshire. Salary: To £4,500 Rel. P417.

SENIOR PROGRAMMING/ANALYST At least 3 years' in O.P. to include working knowledge of Cobol MVS and JCL. Area: Birmingham. Salary: £8,000 Rel. P424

PROGRAMMER 2 years' plus Cobol and Assembler. Area: Stafford. Salary: £5,000 Rel. P422

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The Housing Department has completed an initial survey of requirements for computer facilities in the next 5 to 10 years. The Department wishes to appoint to this newly created post a person well-qualified by training and experience in the development and application of computerised systems. Experience of local authority housing work, whilst not essential, would be an advantage, as would a knowledge of organisation and methods techniques. The person appointed is likely to have had at least 5 years' experience in positions of responsibility. Initially, the main function of the job will be to investigate and analyse in detail the departmental requirements and to prepare a system development plan. Thereafter, the Computer Systems Officer will be responsible for the co-ordination of systems development and implementation undertaken jointly by the systems team comprising Housing Department staff and computer specialists of the Lothian Region's Computer Division or other agencies. Considerable participation will be required in systems work, monitoring of progress of each project, preparation of documentation, implementation and general control of the standards of work undertaken for the five major divisions of the department.

Application forms and further details available from the Director of Housing, 23/25 Waterloo Place.



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For Applications Programmers:
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 - (b) Implementing systems for specific applications in the advertising and marketing industry in the U.K. and Europe.
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We need the following key people from the beginning:

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Systems Programmer with three or more years' experience of DOS/VS on the 370 series. Communication software and especially CICS experience would be an advantage.

Systems Analyst with three or more years' experience, preferably with a large information system, perhaps in the financial sector. Experience with COBOL is desirable, as is a working knowledge of telecommunications.

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THE SALES AND MARKETING BIT

Spotting tomorrow's failures and successes

IN the context of territory management it is as important to be aware of the source of tomorrow's new business prospects as that of today's. It is therefore essential that the salesmen has a complete awareness of the significant areas of decline and growth within the companies and markets throughout his territory.

Of course it's tempting to "do a Micawber" and wait for sales prospects to turn up. It's easy to sit around the office moaning about the company's lack of promotional activity or the need for a direct mailing campaign. However, the salesmen can do a lot for himself when it comes to spotting tomorrow's probable winners and losers in the business world.

This is an essential activity because in this way the salesman can identify new prospects which might be less obvious to his competitors. It can also help him to take early action to protect his company's interests where bankruptcy and liquidation might be on the horizon among existing clients.

Spotting potential winners and losers in the business world can be a complex process which even "city experts" are unable to perform with absolute consistency.

However, there are some tell-tale signs which can be a pointer to future performance.

The well-informed territorial salesmen is a conscientious reader of the national and particularly local business press. This way he gets to know about many of the companies which are enjoying success and suffering failure.

By identifying companies whose apparent growth, dynamism and success is the product of strong and aware management, the salesman can often locate new prospects which would never appear in the usual trade directories and thus be less likely to involve intense competitive activity.

It is a good discipline to keep a prospect file of local companies based on press cuttings declaring sales achievements, market prospects, financial reports, etc. This can become a good pointer to present and future potential in terms of business trends and an awareness of significant growth and decline situations. In both circumstances the implications can be significant with much to lose or much to gain, and a little well-informed foresight can enable the salesman to exploit either situation to his advantage.

The well informed salesman is one who knows where new business opportunities are most likely to occur. Unfortunately he cannot rely on the 1974 edition of Kompass to tell him where he needs to go to find the right place at the right time.

Spotting declining companies is a very difficult process. There are two techniques that can be used.

One is to personally

contrived "early warning system," particularly relevant to existing clients, which could indicate a decline that might be so slight as to be apparently irrelevant, but worth identifying nonetheless. Simply attempt to discover what proportion of the company's revenue actually comes from completely new customers and/or new product developments. If the proportion is in single figures or less than the current rate of inflation, the company is potentially stagnant with survival probably dependent on its revenue "fly-wheel" and thus increasingly at risk to competition.

The other and more positive approach is to take out formal credit ratings and obtain copies of annual reports regarding existing and potential prospects. There are several sources for gaining this type of information ranging from Companies House to Dun and Bradstreet. The salesman should pay particular attention to such details as turnover and rate of growth; value of order book; stock levels; total of outstanding debt; total of outstanding credit; days' credit given by creditors; days' credit taken by debtors; tax liabilities; and outstanding borrowings.

If the salesman can also discover the proportion of capacity utilised and investment in new products and innovation, so much the better. An amalgam of all this information can give a good "gut feeling" for the company's future prospects.

TRADER

Calculators explained

A BOOKLET exploring the argument of the various calculator logic systems available in advanced calculators is available free of charge from Hewlett-Packard. The booklet will interest instructors who are involved in teaching calculator usage, or assisting students to gain the most from their calculators. Copies may be had from Hewlett-Packard at King Street Lane, Wetherham, Wokingham, Berkshire RG11 5AR.

ARC brochure

A BROCHURE on the protocol and diagnostic testing of the IBM Series 370 and Teletype Dataapod 40/4 terminals is available from Atlantic Research Corp. It describes the capabilities of the ARC Inter-shed test system and is available free from Atlantic Research at 5390 Cherokee Avenue, Alexandria, Virginia 22314 USA.

Puzzle Answer

THW two sums are 158 x 23 and 158 x 23

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